



STIC Search Report

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STIC Database Tracking Number: 108840

TO: Traviss McIntosh
Location: CM1/8D10
Art Unit: 1623
Saturday, November 29, 2003

Case Serial Number: 09/873751

From: Mary Jane Ruhl
Location: Biotech-Chem Library
CM1-6A06
Phone: 605-1155

maryjane.ruhl@uspto.gov

Search Notes

Examiner McIntosh,

Here are the results for your recent search request.

Please feel free to contact me if you have any questions about these results.

Thank you for using STIC services. We appreciate the opportunity to serve you.

Sincerely,

Mary Jane Ruhl
Technical Information Specialist
STIC
CM-1, Rm. 6-A-06
605-1155

*Nothing teaches Zine in
their compositions.*

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Patent and Trademark Office

SEARCH REQUEST FORM

108840
bas

Requestor's Name: Travis M. Smith 19380 Serial Number: 09/873,751
Date: 11/20/03 Phone: 304-9479 Art Unit: 1623

Search Topic:

Please write a detailed statement of search topic. Describe specifically as possible the subject matter to be searched. Define any terms that may have a special meaning. Give examples or relevant citations, authors, keywords, etc., if known. For sequences, please attach a copy of the sequence. You may include a copy of the broadest and/or most relevant claim(s).

phase search an oral rehydration solution comprising:

- a.) 30-95 mEq/l of Sodium*
- b.) 10-30 mEq/l of Potassium*
- c.) 3-95 mEq/l of Zinc*
- d.) 10-10 mEq/l of Citrate*
- e.) about 3.0 wt/wt % a carbohydrate (dextrose +/or fructose)*
- + optionally f.) water*

See key claims 1+16

Thanks

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Date completed: _____
Searcher: _____
Terminal time: _____
Elapsed time: _____
CPU time: _____
Total time: _____
Number of Searches: _____
Number of Databases: _____

Search Site

_____ STIC
_____ CM-1
_____ Pre-S

Type of Search

_____ N.A. Sequence
_____ A.A. Sequence
_____ Structure
_____ Bibliographic

Vendors

_____ IG
_____ STN
_____ Dialog
_____ APS
_____ Geninfo
_____ SDC
_____ DARC/Questel
_____ Other

=> d his ful

FILE 'HCAPLUS' ENTERED AT 15:29:10 ON 29 NOV 2003

L5 172 SEA ABB=ON ?ORAL?(W)?HYDRAT?(W) (?SOLUTION? OR ?COMPOSITION?)

FILE 'REGISTRY' ENTERED AT 15:32:25 ON 29 NOV 2003

L6 1 SEA ABB=ON SODIUM/CN
L7 1 SEA ABB=ON POTASSIUM/CN
L8 1 SEA ABB=ON ZINC/CN
L9 1 SEA ABB=ON CITRATE/CN
L10 1 SEA ABB=ON DEXTROSE/CN
L11 2 SEA ABB=ON FRUCTOSE/CN
L12 1 SEA ABB=ON WATER/CN
L13 4 SEA ABB=ON L6 OR L7 OR L8 OR L9
L14 3 SEA ABB=ON L10 OR L11

FILE 'HCAPLUS' ENTERED AT 15:33:51 ON 29 NOV 2003

L15 86 SEA ABB=ON L5 AND ((L6 OR NA OR ?SODIUM?) OR (L7 OR K OR
?POTASSIUM?) OR (L8 OR ZN OR ?ZINC?) OR (L9 OR ?CITRATE?))
L16 30 SEA ABB=ON L15 AND (L10 OR ?DEXTROSE? OR L11 OR ?FRUCTOSE?)
L17 23 SEA ABB=ON L16 AND (L12 OR ?WATER? OR H2O)

FILE 'MEDLINE, BIOSIS, EMBASE, JICST-EPLUS, JAPIO' ENTERED AT 15:39:18 ON
29 NOV 2003

L18 188 SEA ABB=ON L17
L19 126 DUP REMOV L18 (62 DUPLICATES REMOVED)
L20 102 SEA ABB=ON L19 AND ?HUMAN?
L21 80 SEA ABB=ON L20 AND THERAPY?
L22 30 SEA ABB=ON L21 AND REHYDRAT?(W) THERAP?

FILE 'HCAPLUS' ENTERED AT 15:51:56 ON 29 NOV 2003

L23 3 SEA ABB=ON L17 AND ?HUMAN?
L24 1 SEA ABB=ON L17 AND ?REHYDRAT?(W)?THERAP?
L25 4 SEA ABB=ON L23 OR L24
L26 23 SEA ABB=ON L17 OR L25
L27 0 SEA ABB=ON L26 AND ?METHOD?

FILE 'MEDLINE, BIOSIS, EMBASE, JICST-EPLUS, JAPIO' ENTERED AT 15:53:58 ON
29 NOV 2003

L28 9 SEA ABB=ON L22 AND METHOD?
L29 30 SEA ABB=ON L22 OR L28

*It is difficult & risky to search on units of
concentration, in these databases, e.g. 30-95 mEq/l.
Sorry!*

=> d ibib abs 14 1-1

L4 ANSWER 1 OF 1 HCAPLUS COPYRIGHT 2003 ACS on STN

ACCESSION NUMBER: 2003:319277 HCAPLUS

DOCUMENT NUMBER: 138:343862

TITLE: Oral rehydration compositions containing zinc

INVENTOR(S): **Phillips, Kenneth M.; Marchio, Amy**

L.; Pollack, Paul F.

PATENT ASSIGNEE(S): USA

SOURCE: U.S. Pat. Appl. Publ., 9 pp.

CODEN: USXXCO

DOCUMENT TYPE: Patent

LANGUAGE: English

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
-----	---	-----	-----	-----
US 2003077333	A1	20030424	US 2001-873751	20010604
PRIORITY APPLN. INFO.:			US 2001-873751	20010604
AB The present invention is directed to a zinc supplemented ORS and its use in the treatment of diarrhea. Thus, a formulation contained fructose 1.275, dextrose 5.575, NaCl 0.535, sodium citrate 0.2825, potassium citrate 0.5925, Acesulfame-K 0.125, Sucralose 0.10, citric acid 0.125 g.				

=> d que stat 126

L5 172 SEA FILE=HCAPLUS ABB=ON ?ORAL?(W)?HYDRAT?(W)(?SOLUTION? OR
?COMPOSITION?)

L6 1 SEA FILE=REGISTRY ABB=ON SODIUM/CN

L7 1 SEA FILE=REGISTRY ABB=ON POTASSIUM/CN

L8 1 SEA FILE=REGISTRY ABB=ON ZINC/CN

L9 1 SEA FILE=REGISTRY ABB=ON CITRATE/CN

L10 1 SEA FILE=REGISTRY ABB=ON DEXTROSE/CN

L11 2 SEA FILE=REGISTRY ABB=ON FRUCTOSE/CN

L12 1 SEA FILE=REGISTRY ABB=ON WATER/CN

L15 86 SEA FILE=HCAPLUS ABB=ON L5 AND ((L6 OR NA OR ?SODIUM?) OR (L7
OR K OR ?POTASSIUM?) OR (L8 OR ZN OR ?ZINC?) OR (L9 OR
?CITRATE?))

L16 30 SEA FILE=HCAPLUS ABB=ON L15 AND (L10 OR ?DEXTROSE? OR L11 OR
?FRUCTOSE?)

L17 23 SEA FILE=HCAPLUS ABB=ON L16 AND (L12 OR ?WATER? OR H2O)

L23 3 SEA FILE=HCAPLUS ABB=ON L17 AND ?HUMAN?

L24 1 SEA FILE=HCAPLUS ABB=ON L17 AND ?REHYDRAT?(W)?THERAP?

L25 4 SEA FILE=HCAPLUS ABB=ON L23 OR L24

L26 23 SEA FILE=HCAPLUS ABB=ON L17 OR L25

=> d ibib abs 126 1-23

L26 ANSWER 1 OF 23 HCAPLUS COPYRIGHT 2003 ACS on STN

ACCESSION NUMBER: 2003:817932 HCAPLUS

DOCUMENT NUMBER: 139:312443

TITLE: **Oral rehydration
composition**INVENTOR(S): Mitchell, Cheryl R.; Riikonene, Charlene B.; Sack,
David A.

PATENT ASSIGNEE(S): USA

SOURCE: U.S. Pat. Appl. Publ., 6 pp.

CODEN: USXXCO

DOCUMENT TYPE: Patent

LANGUAGE: English

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
US 2003194448	A1	20031016	US 2002-125367	20020416
WO 2003088901	A2	20031030	WO 2003-US11226	20030408

W: AU, CA, CN, IL, IN, JP, MX, RU, ZA
RW: AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE,
IT, LU, MC, NL, PT, RO, SE, SI, SK, TR

PRIORITY APPLN. INFO.: US 2002-125367 A 20020416

AB A rehydration composition and oral delivery system is provided that allows for enhanced functional ingredient delivery when ingested orally as a **water** based solution. The rehydration composition comprises a low fiber colloidal hydrolyzed rice carbohydrate ingredient having, on a dry weight basis, less than 0.1% fiber and between 0.5% and 1.0% protein and between 0-0.5% and 1.0% fat, and having a **dextrose** equivalency (DE) value within the approx. range of 20-30 (commonly DE 25), and electrolytes such as **sodium, potassium, citrate**, and/or bicarbonate. The rehydration composition, which is concentrated or dried, becomes an **oral rehydration solution** when mixed with **water** for oral consumption. The rehydration composition, when mixed with active ingredients such as vaccines, drugs, amino acids, mineral

salts, vitamins, nutraceuticals, probiotics, prebiotics, flavors, or nutritive or non-nutritive sweeteners, is referred to as an oral delivery system. This oral delivery system may then be further diluted in a **water** base to produce an oral delivery solution that is suitable for oral ingestion by a user. For example, a drink solution (osmolarity 210 mmol/kg) was formulated containing **water** 953.4, rice syrup solids (30 DE) 40, NaCl 0.8, KCl 0.3, **trisodium citrate** 0.6, and lemon flavor 0.6 g.

L26 ANSWER 2 OF 23 HCAPLUS COPYRIGHT 2003 ACS on STN

ACCESSION NUMBER: 2002:336246 HCAPLUS
DOCUMENT NUMBER: 137:362198
TITLE: Oral rehydration: toward a real solution
AUTHOR(S): Guarino, Alfredo; Albano, Fabio; Guandalini, Stefano
CORPORATE SOURCE: Working Group on Acute Gastroenteritis, Department of Pediatrics, University of Naples, Naples, Italy
SOURCE: Journal of Pediatric Gastroenterology and Nutrition (2001), 33(Suppl. 2), S2-S12
CODEN: JPGND6; ISSN: 0277-2116
PUBLISHER: Lippincott Williams & Wilkins
DOCUMENT TYPE: Journal; General Review
LANGUAGE: English

AB A review. Infectious diarrhea is a leading cause of childhood death. Although in 1980, it accounted for as many as 5 million deaths, the last estimate in 1999 was 2.2 million deaths of adults and children. Such a spectacular decrease in mortality rate is largely because of the increasing use of **oral rehydration solution** (ORS). To gain a wider perspective on the ideal ORS, this review will briefly discuss the current understanding of pathophysiol. processes responsible for **water** and electrolyte absorption from the intestine and their modifications in diarrheal disease. It will then review available options and possible new developments.

REFERENCE COUNT: 65 THERE ARE 65 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L26 ANSWER 3 OF 23 HCAPLUS COPYRIGHT 2003 ACS on STN

ACCESSION NUMBER: 2001:548533 HCAPLUS
DOCUMENT NUMBER: 135:357261
TITLE: Proabsorptive action of gum arabic: regulation of nitric oxide metabolism in the basolateral **potassium** channel of the small intestine
AUTHOR(S): Rehman, Khalil; Wingertzahn, Mark A.; Harper, Rita G.; Wapnir, Raul A.
CORPORATE SOURCE: Division of Perinatal Medicine, Department of Pediatrics, North Shore-Long Island Jewish Health System, Manhasset, NY, 11030, USA
SOURCE: Journal of Pediatric Gastroenterology and Nutrition (2001), 32(5), 529-533
CODEN: JPGND6; ISSN: 0277-2116
PUBLISHER: Lippincott Williams & Wilkins
DOCUMENT TYPE: Journal
LANGUAGE: English

AB Gum arabic, a high-mol.-weight natural polysaccharide, has proabsorptive effects in animal models of gastrointestinal disease that involve nitric oxide (NO). Gum arabic may indirectly regulate NO metabolism by creating an outward NO gradient, thus altering other intracellular NO-dependent mechanisms such as gating of the K⁺ channels. This hypothesis was investigated in male Sprague-Dawley rats using the K⁺ channel blocker glibenclamide. Following i.p. injection of 4.5 mg glibenclamide/kg or saline, the jejunum of anesthetized rats was perfused

with standard oral rehydration solns. without or with 2.5 g gum arabic/L and 1 mM L-arginine to enhance NO production **Sodium**, net **water**, and glucose absorption and unidirectional **water** movement were determined Gum arabic showed regulatory capacity for NO-dependent metabolism

by

decreasing net **water** absorption in the absence of arginine and **sodium** absorption after arginine stimulation in the absence of glybenclamide. Addition of gum arabic to the rehydration solution in glybenclamide pretreated animals and in the absence of arginine normalized the **sodium** absorption, but was less effective in restoring net **water** transport. Glybenclamide sharply decreased all absorption markers with arginine supplemented **oral rehydration solution**; these were at least partly restored by the addition of gum arabic to the rehydration solution In the presence of glybenclamide, the effects of arginine were antiabsorptive, as those observed in preceding studies with high arginine concns. Gum arabic partially or fully reversed alterations produced by perfusion with 1 mM arginine. Thus, some of the effects of gum arabic on the small intestine are likely caused by its ability to remove NO as it diffuses into the lumen, thus decreasing NO concns. in enterocytes and indirectly affecting the absorptive/secretory responses of the gut, which leads to normalization of absorptive functions. The findings are consistent with the previously shown NO scavenging properties of gum arabic and support a potential therapeutic role for this product.

REFERENCE COUNT: 31 THERE ARE 31 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L26 ANSWER 4 OF 23 HCAPLUS COPYRIGHT 2003 ACS on STN

ACCESSION NUMBER: 2001:384332 HCAPLUS

DOCUMENT NUMBER: 135:136831

TITLE: Stimulation of non-**sodium**-dependent **water**, electrolyte, and glucose transport in rat small intestine by gum Arabic

AUTHOR(S): Wingertzahn, Mark A.; Teichberg, Saul; Wapnir, Raul A.

CORPORATE SOURCE: Department of Pediatrics, North Shore-Long Island Jewish Health System, New York University School of Medicine, Manhasset, NY, USA

SOURCE: Digestive Diseases and Sciences (2001), 46(5), 1105-1112

CODEN: DDSCDJ; ISSN: 0163-2116

PUBLISHER: Kluwer Academic/Plenum Publishers

DOCUMENT TYPE: Journal

LANGUAGE: English

AB In exptl. models of gastroenterol. disease, the soluble fiber gum arabic (GA) acts as a proabsorptive adjuvant. This study investigated which specific transport pathway(s) are affected by GA. Rat jejunum was perfused under anesthesia with a standardized **oral rehydration solution** (ORS) containing D-glucose, with or without GA (2.5 g/L). In some preps. either phloridizin, a competitive inhibitor of Na +-coupled D-glucose transport, or phloretin, an inhibitor of basolateral glucose transport, were added to the ORS, with or without GA. Diffusion and paracellular transport changes due to GA were evaluated with L-glucose and [14C]polyethylene glycol 4000 (PEG). GA partially reversed **water**, Na+, and D-glucose absorption inhibition induced by phloridizin and normalized **water** and Na+ absorption in the presence of phloretin. GA also increased absorption of **water**, Na+, and PEG from an L-glucose ORS. The data suggest that GA does not act via Na+ dependent mechanism(s), but stimulates transcellular and/or transjunctional transport pathways; therefore GA may be useful to increase absorption of solutes transported

by diffusion.

REFERENCE COUNT: 37 THERE ARE 37 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L26 ANSWER 5 OF 23 HCAPLUS COPYRIGHT 2003 ACS on STN

ACCESSION NUMBER: 2001:318134 HCAPLUS

DOCUMENT NUMBER: 135:231613

TITLE: **Oral rehydration solution**

containing rice maltodextrins in patients with total colectomy and high intestinal output

AUTHOR(S): Pironi, L.; Guidetti, C.; Incasa, E.; Poggioli, G.; Paganelli, F.; Merli, C.; Fumi, L.; Miglioli, M.

CORPORATE SOURCE: First Internal Medicine Unit, University of Bologna, Bologna, 40138, Italy

SOURCE: International Journal of Clinical Pharmacology Research (2000), 20(3/4), 55-60

CODEN: CPHRDE; ISSN: 0251-1649

PUBLISHER: Bioscience Ediprint Inc.

DOCUMENT TYPE: Journal

LANGUAGE: English

AB Oral rehydration solns. containing rice maltodextrins (R-ORS) have been reported to be more effective than glucose-based ORS in reducing intestinal losses in infectious diarrhea. To evaluate the effect of R-ORS in patients with total colectomy and high intestinal output, a perspective open noncontrolled study was performed on 13 adult patients who consumed 1 l/day of R-ORS for 7 days. Body weight, daily ileal and urinary output, serum electrolytes, aldosterone and renin activity were measured the day before (day 0) and on the last day of the study (day 7). Net changes (mean \pm SE) from day 0-7 showed an increase of urine **Na** (40 ± 16 mmol/day, $p < 0.04$) and **K** (24 ± 8 mmol/day, $p < 0.02$). Body weight increased in seven patients. Serum renin activity decreased (-0.60 ± 0.26 ng/mL/min) in these patients but not in the six patients in whom body weight remained unchanged (0.19 ± 0.07 ng/mL/min; $p < 0.03$). Ileal and urinary volume remained stable. In patients with high ileal output, R-ORS supplementation improved **Na** and **K** balance. The association of increased body weight with decreased serum renin concns. suggests that a pos. **water** balance also occurred.

REFERENCE COUNT: 18 THERE ARE 18 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L26 ANSWER 6 OF 23 HCAPLUS COPYRIGHT 2003 ACS on STN

ACCESSION NUMBER: 1999:199228 HCAPLUS

DOCUMENT NUMBER: 131:44156

TITLE: Modified starch enhances absorption and accelerates recovery in experimental diarrhea in rats

AUTHOR(S): Wingertzahn, Mark A.; Teichberg, Saul; Wapnir, Raul A.

CORPORATE SOURCE: Departments of Pediatrics, North Shore University Hospital, Manhasset, NY, 11030, USA

SOURCE: Pediatric Research (1999), 45(3), 397-402

CODEN: PEREBL; ISSN: 0031-3998

PUBLISHER: Lippincott Williams & Wilkins

DOCUMENT TYPE: Journal

LANGUAGE: English

AB Rice gruels have been used as home remedies to treat dehydration associated with diarrheal illness in developing countries. These preps. have produced conflicting results, most likely due to the heterogeneity of starch used. We investigated whether the modified tapioca starch, Textra (TX), at 5.0 or 10.0 g/L added to a 90 mmol/L **Na**⁺-111 mmol glucose **oral rehydration solution** (ORS) enhanced **water** and electrolyte absorption in two models of

diarrhea. To induce a secretory state (model A), the jejunum of juvenile rats was perfused with 10 mmol/L theophylline (THEO) under anesthesia and then perfused with the solns. indicated above. To produce chronic osmotic-secretory diarrhea (model B), rats had a magnesium **citrate**-phenolphthalein solution as the sole fluid source for 1 wk, and then were perfused as the THEO-treated rats. **Water**, electrolyte, and glucose absorption were measured during both perfusions. As an extension of the perfusion studies, we compared how fast rats recovered from chronic osmotic diarrhea by offering them either **water**, ORS, or ORS containing 5.0 g/L TX along with solid food. Recovery rate markers were measured after 24 h and included weight gain, food and fluid intake, and stool output. In model A, addition of 5.0 g/L TX to ORS reversed **Na** + secretion and improved net **water** as well as **K** + and glucose absorption, compared with THEO-treated rats perfused with ORS without TX. In model B, addition of TX to ORS increased **water**, **Na** +, **K** +, and glucose absorption, compared with rats perfused without TX. Increasing TX from 5.0 to 10.0 g/L had no addnl. benefit. In recovery expts., animals with free access to ORS with TX had significantly greater weight gain and decreased stool output compared with animals recovering with **water** or ORS without TX. Our expts. suggest that TX may be a useful additive to standard ORS to promote fluid and electrolyte absorption and may provide addnl. energy without increasing ORS osmotic load.

REFERENCE COUNT: 40 THERE ARE 40 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L26 ANSWER 7 OF 23 HCAPLUS COPYRIGHT 2003 ACS on STN

ACCESSION NUMBER: 1999:71300 HCAPLUS

DOCUMENT NUMBER: 130:236841

TITLE: Proabsorptive effect of glycerol as a glucose substitute in **oral rehydration solutions**

AUTHOR(S): Allen, Leslie A.; Wingertzahn, Mark A.; Teichberg, Saul; Wapnir, Raul A.

CORPORATE SOURCE: Departments of Pediatrics, North Shore University Hospital, Manhasset, NY, 11030, USA

SOURCE: Journal of Nutritional Biochemistry (1999), 10(1), 49-55

CODEN: JNBIEL; ISSN: 0955-2863

PUBLISHER: Elsevier Science Inc.

DOCUMENT TYPE: Journal

LANGUAGE: English

AB Glycerol, a readily diffusible hydrophilic substance, may effectively substitute for glucose and enhance intestinal **water** and **Na** absorption in oral rehydration solns. (ORS). This was evaluated using a low osmolality (230-240 mOsm/kg) ORS containing 75 mM **Na** and combinations of glucose:glycerol 75:0, 50:25; 37.5:37.5, 25:50, 10:65, or 0:75 mM during 3-h in vivo jejunal perfusions in rats. **Water**, **Na**, **K**, glucose, and glycerol absorption and unidirectional fluid movement (Jin, Jeff) were determined. The **Na** and net **water** absorption were maximal at glucose:glycerol ratios between 37.5:37.5 and 10:65 mM. In the absence of glucose (0:75), the absorption of **water** and electrolytes was lower than with any other ORS. The greater net rehydration seemed to be due to higher Jin value as glycerol was increased up to 65 mM. The **K** absorption followed a similar pattern. With 50 mM glycerol and 25 mM glucose, there was a marked expansion of the lamina propria extracellular space and increased intercellular expansion between enterocytes. Thus, glycerol may be an effective partial substitute for glucose in ready-to-use ORS able to improve rates of **water** and electrolyte absorption.

REFERENCE COUNT: 28 THERE ARE 28 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L26 ANSWER 8 OF 23 HCAPLUS COPYRIGHT 2003 ACS on STN

ACCESSION NUMBER: 1997:639342 HCAPLUS

DOCUMENT NUMBER: 127:292467

TITLE: Effects of an isotonic **oral rehydration solution**, enriched with glutamine, on fluid and **sodium** absorption in patients with a short-bowel

AUTHOR(S): Beaugerie, L.; Carbonnel, F.; Hecketsweiler, B.; Dechelotte, P.; Gendre, J. P.; Cosnes, J.

CORPORATE SOURCE: Dep. Gastroenterol., Hop. Rothschild, Paris, Fr.
SOURCE: Alimentary Pharmacology and Therapeutics (1997), 11(4), 741-746

CODEN: APTHEN; ISSN: 0269-2813

PUBLISHER: Blackwell

DOCUMENT TYPE: Journal

LANGUAGE: English

AB Our aim was to compare the effects of a standard **oral rehydration solution** with a polymeric glucose isotonic solution enriched with glutamine on **water** and **sodium** absorption in the short bowel. Six patients with high jejunostomy were tested in a random order on 2 consecutive days with the standard solution (20

g/L glucose, 94 mmol/L **sodium**, 292 mOsm/kg osmolality) and a solution containing maltodextrins (18 g/L Glucidex 12; hydrolysis of 18 g of Glucidex 12 yields 20 g glucose) enriched with 14.6 g/L of glutamine (94 mmol/L **sodium**, 282 mOsm/kg osmolality). Solns. were administered via a naso-gastric tube at a rate of 2 mL/min. Jejunal effluent for each solution was collected during an 8-h period, after a 14-h equilibrium period. The net 8-h fluid absorption was not significantly different between the standard solution and the solution with glutamine (333 ± 195 and 213 ± 251 mL, resp. (mean \pm S.E.M.)). Net **sodium** absorption was higher for the standard solution than for the solution with glutamine (15 ± 15 vs. 2 ± 20 mmol, $P < 0.05$). The rate of glucose absorption was not different between the solns. The replacement of glucose by maltodextrins and the addition of glutamine to the standard **oral rehydration soln** .., without changing its **sodium** content or osmolality, results in a reduction of **sodium** absorption in the short-bowel syndrome.

L26 ANSWER 9 OF 23 HCAPLUS COPYRIGHT 2003 ACS on STN

ACCESSION NUMBER: 1997:463354 HCAPLUS

DOCUMENT NUMBER: 127:130749

TITLE: Studies of **water** and electrolyte movement from **oral rehydration solutions** (rice- and glucose-based) across a

normal and secreting gut using a dual isotope tracer technique in a rat perfusion model

AUTHOR(S): Wall, C. R.; Bates, M. S.; Cleghorn, G. J.; Ward, L.

CORPORATE SOURCE: Children's Nutrition Research Centre, The Royal Children's Hospital, Brisbane, Australia

SOURCE: Alimentary Pharmacology and Therapeutics (1997), 11(3), 581-587

CODEN: APTHEN; ISSN: 0269-2813

PUBLISHER: Blackwell

DOCUMENT TYPE: Journal

LANGUAGE: English

AB To establish a model to measure bidirectional flow of **water** from a glucose **oral rehydration solution** (G-ORS) and

a newly developed rice-based **oral rehydration solution** (R-ORS) using a dual isotope tracer technique in a rat perfusion model. To measure net **water**, **sodium** and **potassium** absorption from the ORS. In vivo steady-state perfusion studies were carried out in normal and secreting (induced by cholera toxin) rat small intestine (n = 11 in each group). To determine bidirectional flow of **water** from the ORS the animals were initially labeled with tritium, and deuterium was added to the perfusion solution. Sequential perfusate and blood samples were collected after attainment of steady-state conditions and analyzed for **water** and electrolyte content. There was a significant increase in net **water** absorption from the R-ORS compared to the G-ORS in both the normal ($P < 0.02$) and secreting intestine ($P < 0.05$). **Water** efflux was significantly reduced in the R-ORS group compared to the G-ORS group in both the normal ($P < 0.01$) and the secreting intestine ($P < 0.01$). There was an increase in **sodium** absorption in the R-ORS group compared to the G-ORS. The G-ORS produced a significantly greater blood glucose level at 75 min compared to the R-ORS ($P < 0.03$) in the secreting intestine. This study demonstrates the improved **water** absorption from a rice-based ORS in both the normal and secreting intestine. Evidence that the absorption of **water** may be influenced by the osmolality of the ORS was also demonstrated.

L26 ANSWER 10 OF 23 HCAPLUS COPYRIGHT 2003 ACS on STN

ACCESSION NUMBER: 1996:742631 HCAPLUS

DOCUMENT NUMBER: 126:18267

TITLE: Pre-stress carbohydrate solution prevents fatal outcome after hemorrhage in 24-hour food-deprived rats
AUTHOR(S): Nettelblatt, Carl-Gustaf; Alibergovic, Asim; Ljungqvist, Olle

CORPORATE SOURCE: Department Surgery, Karolinska Hospital and Institute, Stockholm, S-171 76, Swed.

SOURCE: Nutrition (Tarrytown, New York) (1996), 12(10), 696-699

CODEN: NUTRER; ISSN: 0899-9007

PUBLISHER: Elsevier

DOCUMENT TYPE: Journal

LANGUAGE: English

AB Twenty-four-hour food deprivation increases mortality after exptl. hemorrhage. Survival after hemorrhage is closely related to the capacity of the animal to develop hyperglycemia. In this study, 24-h food-deprived rats were subjected to hemorrhage over a period of 75 min, standardized to reach a final blood pressure of 45 mmHg. Just prior to hemorrhage, the rats ingested a carbohydrate solution (n = 8) 2.16 mL/100 g body weight

(b.weight)

or the same volume of **water** sweetened with **sodiumsaccharinate** (n = 7). A third group (n = 8) receive an IV infusion of 5% glucose 0.5 mL/100 g b. weight to mimic the hyperglycemia during hemorrhage of rats taking carbohydrates before stress. During hemorrhage rats treated with oral carbohydrate and IV glucose developed moderate hyperglycemia while glucose levels fell in **water**-treated rats ($P < 0.001$). Concomitant developments in hematocrits indicated improved plasma refill in carbohydrate- and glucose-treated animals vs. controls ($P < 0.05$). There were no significant differences in blood pressure by the end of hemorrhage. Six of the seven animals treated with **water** died within 2 h of bleeding. In both the carbohydrate- and the glucose-treated groups 7 of 8 animals recovered and survived the 7-d observation period ($P < 0.05$ vs. controls). It is concluded that **oral carbohydrate solution** before hemorrhage can alter the outcome after exptl. hemorrhage. The

similar finding in rats given IV glucose suggests that the key factor for survival was the capacity to mount a state of hyperglycemia during hemorrhage.

L26 ANSWER 11 OF 23 HCAPLUS COPYRIGHT 2003 ACS on STN

ACCESSION NUMBER: 1996:650454 HCAPLUS

DOCUMENT NUMBER: 125:284730

TITLE: Improving the palatability of **oral rehydration solutions** has implications for salt and **water** transport: A study in animal models

AUTHOR(S): Dias, J. A.; Thillainayagam, A. V.; Hoekstra, H.; Walker-Smith, J. A.; Farthing, M. J. G.

CORPORATE SOURCE: Department Digestive Diseases Research Centre, West Smithfield/London, EC1 M 6BQ, UK

SOURCE: Journal of Pediatric Gastroenterology and Nutrition (1996), 23(3), 275-279
CODEN: JPGND6; ISSN: 0277-2116

PUBLISHER: Lippincott-Raven

DOCUMENT TYPE: Journal

LANGUAGE: English

AB It is believed that improving the taste of oral rehydration solns. (ORSs) might lead to greater patient acceptability. A pilot trial showed that replacing glucose with sucrose and increasing the **citrate** concentration at the expense of chloride improves palatability. However, the transport implications of such modifications are not known. Three hypotonic exptl. ORSs (Suc/cit-ORS, 211 mosmol/kg; Suc/Cl-ORS, 224 mosmol/kg; and Glu-ORS, 224 mosmol/kg) were compared with a standard European ORS (Euro-ORS, 265 mosmol/kg) by in vivo perfusion of entire rat small intestine in normal adult rats and rotavirus-infected neonates. All ORSs were of identical **sodium, potassium, chloride, and citrate** content except that in the Suc/cit-ORS, chloride was removed in favor of increased **citrate**, and the chloride concentration in Euro-ORS was higher than in the others. Suc/cit-ORS and Suc/Cl-ORS had glucose partially replaced by sucrose while Glu-ORS and Euro-ORS contained only glucose. In normal small intestine, **water** absorption was greater from Glu-ORS than Suc/cit-ORS or Euro-ORS, although **water** absorption was similar from Suc/cit-ORS and Suc/Cl-ORS. In the rotavirus model, Glu-ORS produced more **water** absorption than Euro-ORS or either sucrose ORS. In both models, Suc/cit-ORS caused **sodium** and chloride secretion. Glucose absorption was similar from all ORSs. These findings indicate that attempts to improve ORS palatability by adding sucrose or increasing **citrate** at the expense of chloride would incur a significant penalty in terms of salt and **water** absorption.

L26 ANSWER 12 OF 23 HCAPLUS COPYRIGHT 2003 ACS on STN

ACCESSION NUMBER: 1994:570481 HCAPLUS

DOCUMENT NUMBER: 121:170481

TITLE: Evaluation of the effects of varying solute content on the efficacy of **oral rehydration solutions** in a rat model of secretory diarrhea

AUTHOR(S): Pillai, G. V.; Brueton, M. J.; Burston, D.; Sandhu, B. K.

CORPORATE SOURCE: Department Child Health, Chelsea and Westminster Hospital, London, SW10 9NH, UK

SOURCE: Journal of Pediatric Gastroenterology and Nutrition (1994), 18(4), 457-60
CODEN: JPGND6; ISSN: 0277-2116

DOCUMENT TYPE: Journal

LANGUAGE: English

AB A series of in vivo steady-state perfusion studies in cholera toxin-induced secreting rat intestine were carried out to investigate net **water**, **sodium**, and **potassium** absorption and **water** influx and efflux from a range of oral rehydration solns. (ORSs) in which the glucose content had been partially replaced by amino acids or food supplements and the **sodium** content had been reduced to 60 mM. The reference solution used was the World Health Organization formula. There was a significant correlation between the osmolality of the ORS and the net **water** absorption ($r = -0.911$; $p < 0.002$). The greatest net **water** absorption occurred using comminuted chicken- and tapioca-supplemented ORS.

L26 ANSWER 13 OF 23 HCAPLUS COPYRIGHT 2003 ACS on STN

ACCESSION NUMBER: 1994:548755 HCAPLUS

DOCUMENT NUMBER: 121:148755

TITLE: Neurohumoral mechanism involved in augmentation of canine jejunal absorption following **oral rehydration solutions**

AUTHOR(S): Bastidas, J. Augusto; Zinner, Michael J.; Yeo, Charles J.

CORPORATE SOURCE: Dep. Surg., Johns Hopkins Med. Inst., Baltimore, MD, 21287-4606, USA

SOURCE: Digestive Diseases and Sciences (1994), 39(5), 1041-7
CODEN: DDSCDJ; ISSN: 0163-2116

DOCUMENT TYPE: Journal

LANGUAGE: English

AB Throughout the world diarrheal diseases kill over 5 million children annually. Oral **rehydration therapy**, initially using glucose-based solns. and more recently cereal-based solns., prevents complications and death from dehydration. These expts. compared the effect of these two rehydration solns. and a mixed meal on jejunal **water** and ionic transport. Five dogs had 25-cm proximal jejunal Thiry-Vella fistulae constructed. Following recovery, jejunal absorption studies (N = 40) were performed using an isotonic electrolyte solution containing [14C]PEG to calculate net fluxes of **water**, **sodium**, and chloride. Each study consisted of a 1-h basal period, followed by a 3-h exptl. period. Each animal was randomly studied in each of four study groups: control, mixed meal, glucose-based and cereal-based rehydration solution. In the mixed meal, glucose-based, and cereal-based solution groups there were significant increases ($P < 0.0001$) in jejunal Thiry-Vella fistula **water** and ion absorption following the stimuli, in the absence of direct luminal nutrient contact with the Thiry-Vella fistula. There were no differences between the observed responses to the glucose-based or cereal-based rehydration solns. Glucose-based and cereal-based rehydration solns. were equally effective in stimulating jejunal absorption of **water** and electrolytes, but less effective than a mixed meal. Both food and oral rehydration solns. appear to increase jejunal absorption partially via a neurohumoral mechanism that is independent of luminal nutrient contact with the Thiry-Vella fistula.

L26 ANSWER 14 OF 23 HCAPLUS COPYRIGHT 2003 ACS on STN

ACCESSION NUMBER: 1993:139592 HCAPLUS

DOCUMENT NUMBER: 118:139592

TITLE: **Water** and solute absorption from a new hypotonic **oral rehydration solution**: evaluation in human and animal perfusion models

AUTHOR(S): Hunt, J. B.; Thillainayagam, A. V.; Salim, A. F. M.;
Carnaby, S.; Elliott, E. J.; Farthing, M. J. G.
CORPORATE SOURCE: Dep. Gastroenterol., St. Bartholomew's Hosp., London,
EC1A 7BE, UK
SOURCE: Gut (1992), 33(12), 1652-9
CODEN: GUTTAK; ISSN: 0017-5749
DOCUMENT TYPE: Journal
LANGUAGE: English

AB Controversy continues regarding the optimal composition of glucose electrolyte oral rehydration solns. for the treatment of acute diarrhea. Four perfusion models (normal **human** jejunum, normal rat small intestine, cholera toxin treated secreting rat small intestine and rotavirus infected rat small intestine) have been developed and used to compare the efficacy of a hypotonic **oral rehydration solution** with standard United Kingdom British National Formulary and developing world oral rehydration solns. (WHO). Despite obvious physiol. and pathophysiol. differences between these models there was general congruence in the **water** and solute absorption profiles of the different oral rehydration solns. Hypotonic **oral rehydration solution** promoted significantly greater **water** absorption than other oral rehydration solns. in all rat models but apparently increased **water** absorption failed to achieve significance in **human** jejunum. British National Formulary-**oral rehydration solution** was unable to reverse net **water** secretion in both rotavirus and cholera toxin models. Net **sodium** absorption from hypotonic and WHO-oral rehydration solns. was significantly greater than from the low **sodium** British National Formulary-oral rehydration solns. except in the rotavirus model when absorption was similar to hypotonic-oral rehydration solns. These findings show that there is agreement in the apparent efficacy of oral rehydration solns. in these animal and **human** perfusion models, and that improved **water** absorption with adequate **sodium** absorption may be achieved by reducing **oral rehydration solution** osmolality.

L26 ANSWER 15 OF 23 HCAPLUS COPYRIGHT 2003 ACS on STN

ACCESSION NUMBER: 1992:34278 HCAPLUS

DOCUMENT NUMBER: 116:34278

TITLE: Search for the ideal **oral rehydration solution**: studies in a model of secretory diarrhea

AUTHOR(S): Elliott, E. J.; Watson, A. J. M.; Walker-Smith, J. A.; Farthing, M. J. G.

CORPORATE SOURCE: Dep. Gastroenterol., Bartholomew's Hosp., London, EC1A 7BE, UK

SOURCE: Gut (1991), 32(11), 1314-20
CODEN: GUTTAK; ISSN: 0017-5749

DOCUMENT TYPE: Journal

LANGUAGE: English

AB In situ perfusion of whole rat small intestine was used to compare the efficacy of 5 oral rehydration solns. in promoting **water** and **sodium** absorption in normal intestine and secreting intestine after exposure to cholera toxin. Solns. varied in their **sodium** (35-90 mM) and glucose (111-200 mM) concns., molar ratio of glucose: **sodium** (1.2-5.8), and osmolality (281-331 milliosmol/kg), and contained either bicarbonate (18-30 mM) or **citrate** (10 mM). In the normal intestine all the solns. promoted net **water** absorption. Cholera toxin induced reproducible **water** secretion but all the solns. reversed this to absorption. **Water** absorption was greatest with solns. containing 60 mM **sodium** and 111

or 140 mM glucose and with a glucose:sodium ratio .apprx.2, in both normal and secreting intestine. All the solns. promoted net glucose absorption in both normal and secreting intestine. Net **sodium** absorption occurred with solns. containing ≥ 60 mM **sodium** in the normal intestine but **sodium** secretion occurred from all solns. in the secreting intestine. **Sodium** movement was directly related to the **sodium** concentration of the solution and **sodium** secretion occurred despite net **water** and glucose absorption.

L26 ANSWER 16 OF 23 HCAPLUS COPYRIGHT 2003 ACS on STN

ACCESSION NUMBER: 1991:623168 HCAPLUS

DOCUMENT NUMBER: 115:223168

TITLE: Short-chain glucose polymer and anthracene-9-carboxylic acid inhibit **water** and electrolyte secretion induced by dibutyryl cyclic AMP in the small intestine

AUTHOR(S): Rabbani, Golam H.; Lu, Rong Bao; Horvath, Karoly; Lebenthal, Emanuel

CORPORATE SOURCE: Int. Inst. Infant Nutr. Gastrointest. Dis., Hahnemann Univ., Philadelphia, PA, 19102-1192, USA

SOURCE: Gastroenterology (1991), 101(4), 1046-53

CODEN: GASTAB; ISSN: 0016-5085

DOCUMENT TYPE: Journal

LANGUAGE: English

AB Glucose-stimulated **sodium** absorption is the rationale for treatment with glucose-based **oral rehydration solution** in diarrhea. Concurrent treatment with pharmacol. inhibitors, which specifically block chloride secretion, may be a useful adjunct to oral fluid therapy. To examine this hypothesis, the authors determined the intestinal **water** and ion transport rates in rat small intestine during the secretory phase induced by perfusion with N6-2'-O-dibutyryl adenosine 3',5'-cyclic monophosphate (dbcAMP), 1.0 mmol/L. A marker (polyethylene glycol 4000) dilution technique was used to evaluate the antisecretory effects of a defined short-chain glucose polymer, D-glucose, and a chloride channel blocker, anthracene-9-carboxylic acid (A-9-C). The results showed that dbcAMP induced small intestinal **water** and chloride ion secretion rapidly and reliably. The 2.5% concentration of rice short glucose polymer (G2, 22.7%; G3, 28.2%; G4, 14.0%; G5, 16.6%; G6, 11.6%; G7-9, 6.9%) is a better carbohydrate than the 2.5% concentration of D-glucose in reversing secretion of **water**, chloride, and **sodium** ions induced by dbcAMP. The combination of A-9-C and the glucose polymer can reverse dbcAMP-induced intestinal secretion and produces significantly better antisecretory effect on **water**, **sodium**, and chloride ions than D-glucose with A-9-C.

L26 ANSWER 17 OF 23 HCAPLUS COPYRIGHT 2003 ACS on STN

ACCESSION NUMBER: 1991:405599 HCAPLUS

DOCUMENT NUMBER: 115:5599

TITLE: Enhanced **sodium** absorption by **citrate**: an in vivo perfusion study of rat small intestine

AUTHOR(S): Patra, F. C.; Rahman, A. S. M. Hamidur; Wahed, M. A.; Al-Mahmud, K. A.

CORPORATE SOURCE: Int. Cent. Diarrhoeal Dis. Res., Dhaka, Bangladesh

SOURCE: Journal of Pediatric Gastroenterology and Nutrition (1990), 11(3), 385-8

CODEN: JPGND6; ISSN: 0277-2116

DOCUMENT TYPE: Journal

LANGUAGE: English

AB The effect of **citrate** on **sodium**, **potassium** chloride, and **water** absorption in the presence of glucose from the whole rat small intestine was studied by an in vivo marker perfusion technique. The perfusion solns. contained glucose and were similar in their electrolyte composition to the currently recommended **oral rehydration solution** for the treatment and prevention of diarrheal dehydration. Significantly more **sodium** and **water** absorption occurred from the **citrate**-containing solution than from the one without **citrate**. It is concluded that **citrate** enhances net **sodium** absorption from a glucose electrolyte solution in the rat small intestine independent of glucose-stimulated absorption.

L26 ANSWER 18 OF 23 HCAPLUS COPYRIGHT 2003 ACS on STN

ACCESSION NUMBER: 1990:62458 HCAPLUS

DOCUMENT NUMBER: 112:62458

TITLE: Absorption of **water** and solute from glucose-electrolyte solutions in the **human** jejunum: effect of **citrate** or betaine

AUTHOR(S): Leiper, John B.; Maughan, R. J.

CORPORATE SOURCE: Dep. Environ. Occup. Med., Univ. Med. Sch., Foresterhill/Aberdeen, AB9 2ZD, UK

SOURCE: Scandinavian Journal of Gastroenterology (1989), 24(9), 1089-94

CODEN: SJGRA4; ISSN: 0036-5521

DOCUMENT TYPE: Journal

LANGUAGE: English

AB Using a modified perfusion system, **water** and solute absorption in the normal **human** intestine from two effervescent glucose-electrolyte solns., containing either **citrate** or betaine-HCl, was examined and the absorption rates were compared with those from a commonly used bicarbonate-containing **oral rehydration solution**. Absorption of **citrate** (355 $\mu\text{mol}/\text{cm}/\text{h}$) and betaine (313 $\mu\text{mol}/\text{cm}/\text{h}$) occurred from the resp. solns. The inclusion of 46 mmol/L **citrate** or 36 mmol/L betaine in effervescent oral rehydration solns. had no effect on **water** or solute absorption.

L26 ANSWER 19 OF 23 HCAPLUS COPYRIGHT 2003 ACS on STN

ACCESSION NUMBER: 1988:509261 HCAPLUS

DOCUMENT NUMBER: 109:109261

TITLE: **Oral hydration solutions** in experimental osmotic diarrhea: enhancement by alanine and other amino acids and oligopeptides

AUTHOR(S): Wapnir, Raul A.; Zdanowicz, Martin M.; Teichberg, Saul; Lifshitz, Fima

CORPORATE SOURCE: Dep. Pediatr., North Shore Univ. Hosp., Manhasset, NY, 11030, USA

SOURCE: American Journal of Clinical Nutrition (1988), 48(1), 84-90

CODEN: AJCNAC; ISSN: 0002-9165

DOCUMENT TYPE: Journal

LANGUAGE: English

AB Improvement of **Na** absorption during the administration of oral hydration solns. (OHS) could increase the efficacy of formulations used in the treatment of infantile diarrhea. To test this hypothesis, selected protein breakdown products were evaluated as absorption enhancers in OHS of different osmolalities and **Na**-to-glucose ratios in an animal model of osmotic diarrhea induced by cathartics. An increase in **water** and **Na** absorption occurred in rats with diarrhea when they were perfused with a 90-mmol/L-**Na**, 111-mmol/L-glucose

OHS containing 30 mmol/L of L-alanine (Ala). The same effect on **Na** retention was observed with a protein hydrolyzate (PrH) in rats with diarrhea. Glycine was not effective. Other exptl. OHS were ineffective in rats with diarrhea. In this animal model of chronic diarrhea, **Na** transport enhancers, such as Ala and a PrH, are most effective in the presence of higher **Na** concentration

L26 ANSWER 20 OF 23 HCAPLUS COPYRIGHT 2003 ACS on STN

ACCESSION NUMBER: 1986:5044 HCAPLUS
DOCUMENT NUMBER: 104:5044
TITLE: **Oral rehydration solutions**
for newborns

INVENTOR(S): Auzerie, Jack
PATENT ASSIGNEE(S): Fr.
SOURCE: Fr. Demande, 10 pp.
CODEN: FRXXBL

DOCUMENT TYPE: Patent

LANGUAGE: French

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
FR 2558061	A1	19850719	FR 1983-20861	19831227
FR 2558061	B1	19860808		

PRIORITY APPLN. INFO.: FR 1983-20861 19831227

AB The title composition, especially useful for rehydration following severe gastroenteric disorders, contains 10-20 g glucose, 10-40 g sucrose, 5-40 mequiv **citrate**, 20-75 mequiv Cl⁻, 0-50 mequiv **K**, and 40-75 mequiv **Na/L water**. Thus, a composition contains glucose 16, sucrose 20, KCl 2, and **Na citrate** 6 g/L **water**. When tested in 200 newborns, the composition controlled diarrheic dehydration.

L26 ANSWER 21 OF 23 HCAPLUS COPYRIGHT 2003 ACS on STN

ACCESSION NUMBER: 1985:583466 HCAPLUS

DOCUMENT NUMBER: 103:183466

TITLE: Osmolality and solute concentration - their relationship with **oral hydration solution** effectiveness: an experimental assessment

AUTHOR(S): Wapnir, Raul A.; Lifshitz, Fima

CORPORATE SOURCE: Dep. Pediatr., North Shore Univ. Hosp., Manhasset, NY, 11030, USA

SOURCE: Pediatric Research (1985), 19(9), 894-8
CODEN: PEREBL; ISSN: 0031-3998

DOCUMENT TYPE: Journal

LANGUAGE: English

AB The role of electrolyte, carbohydrate, and base composition, as well as osmolality, of oral hydration solns. (OHS), was investigated using a nonabsorbable marker and tritiated in an in vivo intestinal perfusion system in rats. The OHS tested were the World Health Organization-recommended formula containing 90 mEq/L **Na** and 111 mM glucose [50-99-7], which was taken as the reference solution; 5 variants of this solution with different **Na** and glucose concns.; and 2 solns. without **Na**, i.e. isotonic glucose and deionized **water**. Also tested were 1 solution with acetate [64-19-7] in lieu of bicarbonate, and 2 com. prepns. where **citrate** [77-92-9] substituted for bicarbonate. The best **water** absorption rates were obtained with World Health Organization-type OHS characterized by a combination of low

osmolality and moderate **Na** and glucose content. Hypotonic OHS (190, 220, and 155 mosmol/kg) in which the **Na**:glucose ratios were 60:30, 60:60, and 30:55, resp., produced mean jejunal **water** transport rates of 3.46, 3.20, and 2.19 $\mu\text{L}/\text{min}/\text{cm}$, resp., whereas the standard World Health Organization OHS (330 mosmol/kg) resulted in a rate of 1.36 $\mu\text{g}/\text{min}/\text{cm}$. Similar good **water** absorption was achieved when acetate was the base (270 mosmol/kg and 60:111 **Na**:glucose ratio) and with 1 of the com. solns. (245 mosmol/kg and 50:111 **Na**:glucose ratio). The reference World Health Organization OHS allowed for **Na** absorption, as did the OHS with **Na**:glucose ratios of 90:45, 60:30, 60:60, and acetate-containing 60:111. **Na** at a concentration of 30 mequiv/L or less resulted in the efflux of this electrolyte. High glucose concentration and lower osmolality exacerbated this effect. The results obtained in this investigation may assist in better evaluating OHS and in selecting modified formula geared to specific hydration needs and possible replacement of **water** and **Na** losses.

L26 ANSWER 22 OF 23 HCAPLUS COPYRIGHT 2003 ACS on STN

ACCESSION NUMBER: 1985:416814 HCAPLUS

DOCUMENT NUMBER: 103:16814

TITLE: **Oral hydration solutions**
: experimental optimization of **water** and **sodium** absorption

AUTHOR(S): Lifshitz, Fima; Wapnir, Raul A.

CORPORATE SOURCE: Dep. Pediatrics, North Shore Univ., Manhasset, NY, 11030, USA

SOURCE: Journal of Pediatrics (St. Louis, MO, United States) (1985), 106(3), 383-9
CODEN: JOPDAB; ISSN: 0022-3476

DOCUMENT TYPE: Journal

LANGUAGE: English

AB Eight solns. of potential efficacy for hydration orally, which differed in composition, osmolality, and pH, were tested in an in vivo perfusion system on rat jejunum to assess the rate of **water** and **Na** absorption or secretion. Optimal results were obtained with a preparation of the type recommended by the World Health Organization, containing 60 mEq/L **Na** and 111 mM glucose [50-99-7]; there was a maximum influx of both **water** and **Na**, which may be ideal for rehydration. It appeared that the critical factor was the molar relationship between glucose and **Na** at a 2:1 ratio. **Na** absorption was inversely correlated with glucose concentration in the perfusates. Osmolality and pH may also have a role in the regulation of fluxes across the mucosa. **Citrate** [77-92-9] at concns. up to 30 mEq/L did not interfere with **water** absorption. The data presented may thus contribute to a better rationale for the use of orally administered hydration solns. and guidelines for the preparation of more effective ready-to-use solns.

L26 ANSWER 23 OF 23 HCAPLUS COPYRIGHT 2003 ACS on STN

ACCESSION NUMBER: 1984:537036 HCAPLUS

DOCUMENT NUMBER: 101:137036

TITLE: Pharmaceutical or veterinary compositions containing guanoxabenz

INVENTOR(S): Newsome, Peter Martin

PATENT ASSIGNEE(S): Beecham Group PLC, UK

SOURCE: Eur. Pat. Appl., 15 pp.
CODEN: EPXXDW

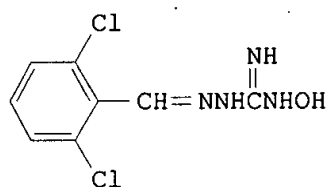
DOCUMENT TYPE: Patent

LANGUAGE: English

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
EP 112061	A2	19840627	EP 1983-307034	19831117
EP 112061	A3	19850814		
R: BE, CH, DE, FR, GB, IT, LI, NL, SE				
AU 8321514	A1	19840524	AU 1983-21514	19831118
PRIORITY APPLN. INFO.:			GB 1982-33152	19821120
GI				



AB Pharmaceutical or veterinary compns. containing guanoxabenz (I) [24047-25-4] are useful for the treatment of diarrhea or scours. The compns. may addnl. contain 0.5% (weight/volume) of an actively absorbed monosaccharide, amino acid, at least 25 mmol Na⁺ and an electrolyte. Thus, an **oral rehydration composition** in dry powder form contained glycine [56-40-6] 10.3, **dextrose** [50-99-7] 67.6, NaCl 14.3, KH₂PO₄ 6.8, citric acid [77-92-9] 0.8, tri-K **citrate** [866-84-2] 0.2 and I 0.003%. Sixty g of the composition was dissolved in 2 L **water** and fed to calves with diarrhea.

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L5      172 SEA FILE=HCAPLUS ABB=ON  ?ORAL?(W)?HYDRAT?(W) (?SOLUTION? OR
        ?COMPOSITION?)
L6      1 SEA FILE=REGISTRY ABB=ON  SODIUM/CN
L7      1 SEA FILE=REGISTRY ABB=ON  POTASSIUM/CN
L8      1 SEA FILE=REGISTRY ABB=ON  ZINC/CN
L9      1 SEA FILE=REGISTRY ABB=ON  CITRATE/CN
L10     1 SEA FILE=REGISTRY ABB=ON  DEXTROSE/CN
L11     2 SEA FILE=REGISTRY ABB=ON  FRUCTOSE/CN
L12     1 SEA FILE=REGISTRY ABB=ON  WATER/CN
L15     86 SEA FILE=HCAPLUS ABB=ON  L5 AND ((L6 OR NA OR ?SODIUM?) OR (L7
        OR K OR ?POTASSIUM?) OR (L8 OR ZN OR ?ZINC?) OR (L9 OR
        ?CITRATE?))
L16     30 SEA FILE=HCAPLUS ABB=ON  L15 AND (L10 OR ?DEXTROSE? OR L11 OR
        ?FRUCTOSE?)
L17     23 SEA FILE=HCAPLUS ABB=ON  L16 AND (L12 OR ?WATER? OR H2O)
L18     188 SEA L17
L19     126 DUP REMOV L18 (62 DUPLICATES REMOVED)
L20     102 SEA L19 AND ?HUMAN?
L21     80 SEA L20 AND THERAPY?
L22     30 SEA L21 AND REHYDRAT?(W) THERAP?
L28     9 SEA L22 AND METHOD?
L29     30 SEA L22 OR L28

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=> d ibib abs 129 1-30

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L29 ANSWER 1 OF 30      MEDLINE on STN
ACCESSION NUMBER:      2001480342      MEDLINE
DOCUMENT NUMBER:       21414616      PubMed ID: 11523764
TITLE:
    Comparison of safety of glucose oral
    rehydration solution and maize oral
    rehydration therapy for home management
    of diarrhoea in Kenya.
AUTHOR:
    Kenya P R; Muttunga J N; Mwenesi H; Molla A M; Bari A; Juma
    R; Were B; Molla A; Sharma P N
CORPORATE SOURCE:      Global Programme on Aids, WHO, Geneva, Switzerland.
SOURCE:
    JOURNAL OF TROPICAL PEDIATRICS, (2001 Aug) 47 (4) 226-9.
    Journal code: 8010948. ISSN: 0142-6338.
PUB. COUNTRY:          England: United Kingdom
DOCUMENT TYPE:          Journal; Article; (JOURNAL ARTICLE)
LANGUAGE:               English
FILE SEGMENT:           Priority Journals
ENTRY MONTH:            200109
ENTRY DATE:             Entered STN: 20010830
                        Last Updated on STN: 20010917
                        Entered Medline: 20010913

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AB Safety margins and variability in the composition of glucose and maize-based oral **rehydration therapy** (ORT) prepared by mothers in a rural district of Western Kenya, are reported here. In a 2-year longitudinal field study, packets containing glucose ORS and a home solution made with maize and table salts, were provided to the mothers of 6180 children in Kakamega District in two separate sub-locations. Experienced and trained field workers supported by community registered nurses provided training for the preparation and use of ORT during weekly visits to every household. On four occasions separated by 4-6 months, a 5 per cent random sampling was done of the home-prepared solutions actually used for the treatment of children with diarrhoea. The **water** used for preparing ORT was also sampled. Samples of 174 glucose-based ORT, 148 maize-salt ORT, and 201 samples of **water** were analysed. Only 2 per cent of the maize-based ORT were above 120 meq/l **sodium**

(i.e., the safe range of **sodium** concentration) compared to 17.8 per cent for glucose solutions ($p < 0.001$). Home **water** samples contained substantial amounts of salt, which could unpredictably affect the final composition of the ORT solutions. We conclude that maize-salt ORT had a better margin of safety than glucose-based ORS.

L29 ANSWER 2 OF 30 MEDLINE on STN
 ACCESSION NUMBER: 92258732 MEDLINE
 DOCUMENT NUMBER: 92258732 PubMed ID: 1582591
 TITLE: **Water** and solute absorption from hypotonic glucose-electrolyte solutions in **human** jejunum.
 AUTHOR: Hunt J B; Elliott E J; Fairclough P D; Clark M L; Farthing M J
 CORPORATE SOURCE: Department of Gastroenterology, St Bartholomew's Hospital, London.
 SOURCE: GUT, (1992 Apr) 33 (4) 479-83.
 Journal code: 2985108R. ISSN: 0017-5749.
 PUB. COUNTRY: ENGLAND: United Kingdom
 DOCUMENT TYPE: Journal; Article; (JOURNAL ARTICLE)
 LANGUAGE: English
 FILE SEGMENT: Abridged Index Medicus Journals; Priority Journals
 ENTRY MONTH: 199206
 ENTRY DATE: Entered STN: 19920626
 Last Updated on STN: 19920626
 Entered Medline: 19920615

AB While oral **rehydration therapy** with glucose-electrolyte solutions is highly effective, the optimal formulation has not yet been defined. Recent clinical studies suggest that stool volume, and thus **water** losses, may be reduced if glucose is replaced by a polymeric substrate which reduces osmolality. It is possible that the efficacy of glucose monomer based **oral rehydration solutions** (ORS) will also improve if osmolality is decreased. Using jejunal triple lumen perfusion in healthy adult volunteers net **water** and solute absorption were studied from three hypotonic solutions with different **sodium** concentrations (46, 60, 75 mmol/l) but identical glucose concentrations (90 mmol/l), thus allowing osmolality to rise (210, 240, and 270 mOsm/kg, respectively). Results from these solutions (ORS 45:210, ORS 60:240, and ORS 75:270) were compared with the World Health Organisation **oral rehydration solution** (WHO-ORS). Greatest **water** absorption was seen with ORS 60:240 (p less than 0.01). **Sodium** absorption from ORS 60:240 and WHO-ORS was similar and greater than **sodium** absorption from ORS 45:210 (p less than 0.05). **Potassium** and glucose absorption were greater from ORS 60:240 than from any of the other hypotonic solutions (p less than 0.05) and were equal to absorption from WHO-ORS). These results in a short segment of healthy **human** jejunum suggest that hypotonic ORS containing monomeric glucose may increase **water** absorption.

L29 ANSWER 3 OF 30 MEDLINE on STN
 ACCESSION NUMBER: 92246659 MEDLINE
 DOCUMENT NUMBER: 92246659 PubMed ID: 1811441
 TITLE: Comparison of glucose/electrolyte and maltodextrin/glycine/glycyl-glycine/electrolyte **oral rehydration solutions** in cholera and **watery** diarrhoea in adults.
 AUTHOR: Khin-Maung-U; Myo-Khin; Nyunt-Nyunt-Wai; Tin-U
 CORPORATE SOURCE: Department of Medical Research, Ministry of Health, Myanmar, Burma.
 SOURCE: ANNALS OF TROPICAL MEDICINE AND PARASITOLOGY, (1991 Dec) 85

(6) 645-50.
 Journal code: 2985178R. ISSN: 0003-4983.
 PUB. COUNTRY: ENGLAND: United Kingdom
 DOCUMENT TYPE: (CLINICAL TRIAL)
 Journal; Article; (JOURNAL ARTICLE)
 (RANDOMIZED CONTROLLED TRIAL)
 LANGUAGE: English
 FILE SEGMENT: Priority Journals
 ENTRY MONTH: 199205
 ENTRY DATE: Entered STN: 19920619
 Last Updated on STN: 19920619
 Entered Medline: 19920529

AB One hundred and eight male adults (mean age 33 +/- 1.7 years) presenting with **watery** diarrhoea of less than 48 hours duration at home prior to hospitalization and with clinically evident (grade II, severe) dehydration were admitted into a randomized double-blind clinical trial; 54 were treated with standard **oral rehydration solution** (ORS)--WHO formulation containing **citrate**--and 54 with an improved ORS formulation which contained, in addition to the standard formula, maltodextrin 20 g (instead of glucose), glycine 4 g and glycyl-glycine 4 g. Patients with clinical cholera were given tetracycline 500 mg q.i.d. *Vibrio cholerae* was detected in 85 patients. The clinical characteristics of patients in the two groups were comparable. The improved ORS did not reduce the volume of diarrhoeic stools in cholera; indeed, patients with cholera who were treated with improved ORS had larger diarrhoea stool volumes. However, those cholera patients given improved ORS showed significantly greater weight gains during the first six-hour period, at the end of the second day, and at discharge. On the other hand, non-cholera patients treated with improved ORS had significantly smaller diarrhoeic stool volumes during the six to 24-hour significantly smaller diarrhoeic stool volumes during the six to 24-hour period (i.e. during the commencement of maintenance **rehydration therapy**).

L29 ANSWER 4 OF 30 MEDLINE on STN
 ACCESSION NUMBER: 91178625 MEDLINE
 DOCUMENT NUMBER: 91178625 PubMed ID: 2007958
 TITLE: Glucose polymers as an alternative to glucose in **oral rehydration solutions**.
 AUTHOR: Lebenthal E; Lu R B
 CORPORATE SOURCE: Department of Pediatrics, Hahnemann University, Philadelphia, PA 19102-1192.
 SOURCE: JOURNAL OF PEDIATRICS, (1991 Apr) 118 (4 (Pt 2)) S62-9.
 Ref: 51
 Journal code: 0375410. ISSN: 0022-3476.
 PUB. COUNTRY: United States
 DOCUMENT TYPE: Journal; Article; (JOURNAL ARTICLE)
 General Review; (REVIEW)
 (REVIEW, ACADEMIC)
 LANGUAGE: English
 FILE SEGMENT: Abridged Index Medicus Journals; Priority Journals
 ENTRY MONTH: 199105
 ENTRY DATE: Entered STN: 19910519
 Last Updated on STN: 19910519
 Entered Medline: 19910502

AB Several issues involving glucose-based oral **rehydration therapy** may limit its acceptability and sustained use. Our studies suggest that defined short-chain glucose polymers (2 to 9 glucose units) are hydrolyzed and absorbed faster than isocaloric solutions of D-glucose in the small intestine of the rat. Glucose polymers, primarily

from rice-based solutions, have been shown to be as effective as glucose-based solutions. They offer additional advantages in reducing the amount and duration of diarrhea with lesser volumes of solution, thereby reducing the costs of treatment. Rice-based solutions provide high caloric density and increase the absorption of **sodium** without an osmotic overload. The result is increased net absorption of glucose, **sodium**, and **water**. Glucose polymers from rice or other starches in **oral rehydration solutions** may be effective, inexpensive, easily used, and safe treatments for acute diarrhea.

L29 ANSWER 5 OF 30 MEDLINE on STN
ACCESSION NUMBER: 91006919 MEDLINE
DOCUMENT NUMBER: 91006919 PubMed ID: 2210097
TITLE: Jejunal and ileal glucose-stimulated **water** and **sodium** absorption in tropical enteropathy: implications for oral **rehydration therapy**
AUTHOR: Rolston D D; Mathan V I
CORPORATE SOURCE: Department of Gastroenterology, Christian Medical College Hospital, Vellore, India.
SOURCE: DIGESTION, (1990) 46 (1) 55-60.
JOURNAL code: 0150472. ISSN: 0012-2823.
PUB. COUNTRY: Switzerland
DOCUMENT TYPE: (CLINICAL TRIAL)
Journal; Article; (JOURNAL ARTICLE)
(RANDOMIZED CONTROLLED TRIAL)
LANGUAGE: English
FILE SEGMENT: Priority Journals
ENTRY MONTH: 199011
ENTRY DATE: Entered STN: 19910117
Last Updated on STN: 19910117
Entered Medline: 19901119

AB Intestinal glucose and **water** absorption in response to glucose has been studied in tropical enteropathy with a view to determine the optimum glucose concentration in **oral rehydration solutions** for use in the tropics. Maximum jejunal **water** and **sodium** absorption occurred from an 80-mM glucose-**sodium** chloride solution (-285.7 +/- 46.0 ml/30 cm/h and -31.8 +/- 3.8 mM/30 cm/h, respectively) during in vivo steady-state jejunal perfusion. At perfusate glucose concentrations greater than 250 mM, however, jejunal **water** and **sodium** secretion occurred. In the ileum, maximum glucose-stimulated **water** absorption (-91.1 +/- 27.1 ml/30 cm/h) was significantly less than in the jejunum. Glucose absorption demonstrated saturation kinetics in both the jejunum and ileum. The half-saturation concentration was higher in the jejunum (167 mM) compared to the ileum (28 mM). This study suggests that the optimal glucose concentration for **oral rehydration solutions** used in the tropics should be 80 mM, as lower and higher concentrations result in diminished jejunal **water** absorption.

L29 ANSWER 6 OF 30 MEDLINE on STN
ACCESSION NUMBER: 89279065 MEDLINE
DOCUMENT NUMBER: 89279065 PubMed ID: 2786544
TITLE: Oral **rehydration therapy** in a rural area, northern Thailand.
AUTHOR: Varavithya W; Sangshaisirisak S; Ramaboot S; Ruangkanhasetr S; Vivatwongkasem C
SOURCE: JOURNAL OF THE MEDICAL ASSOCIATION OF THAILAND, (1989 Jan) 72 Suppl 1 159-63.

Journal code: 7507216. ISSN: 0125-2208.
Report No.: PIP-061008; POP-00198164.
PUB. COUNTRY: Thailand
DOCUMENT TYPE: Journal; Article; (JOURNAL ARTICLE)
LANGUAGE: English
FILE SEGMENT: Priority Journals; Population
ENTRY MONTH: 198907
ENTRY DATE: Entered STN: 19900309
Last Updated on STN: 20021101
Entered Medline: 19890718

AB A cross-sectional sampling survey of mothers' practice of ORT in Amphoe Bunpotphesai in the northern part of Thailand included 1,619 children under five. Two hundred and six children were reported to have 223 diarrheal episodes. The incidence of diarrhea in children under five was 3.4 episodes per child per year. When children had diarrhea 65.5 per cent of mothers sought help from health providers, 25.2 per cent treated their children with drugs bought from stores, 2.3 per cent used herbal medicine and 6.1 per cent did not treat their children. 50.7 per cent of diarrheal episodes mother gave ORT, using ORS 19.7, commercial electrolytes mixture 16.6 and home available fluid 14.4 per cent. The accuracy of dilution of electrolytes powder from the packets was checked in 80 incidences. 31.8 and 27.8 per cent of mothers made correct dilution of ORS and commercial electrolytes products respectively. Health providers carried both ORS and commercial electrolytes packets. ORS added to a glass of **water** was found in 13.6 per cent which was 3 times concentrated. Commercial electrolytes products were too dilute in 72.2 per cent. 17.5 per cent of mothers divided electrolytes powder to add in one spoon of **water** to treat their children as one drug dose. Data showed that the ORT use rate was 50.7 per cent. Home available fluid was used by 14.4 per cent. ORT should be further promoted to control diarrheal diseases and health providers should give instructions to every mother or child minder on how to dispense ORS or electrolytes packets for appropriate dilution and use. From June 8-17, 1987, researchers observed oral **rehydration therapy** (ORT) practices of 200 mothers of children 5 years old and ill with diarrhea in a rural area of northern Thailand. 206 of 1619 children (12.7%) had at least 1 episode of diarrhea during the study period (223 diarrheal episodes). Researchers estimated the number of episodes of diarrhea/year/child to be 3.4 46.1% of the cases experienced mild diarrhea and no child had severe diarrhea. 70.9% of children 2 years old experienced diarrhea during the study period. These children had the highest proportion of diarrheal incidence. 25.2% of the mothers treated the diarrhea with drugs, while 67.8% went to health providers for treatment. 47.5% of the mothers did not treat their children's diarrhea with ORT. 19.7% of those that did treat their children with ORT used WHO's ORS packets, 16.6% used commercial electrolyte mixtures, and 14.4% used home available fluid. Researchers checked the accuracy dilution of ORS and commercial electrolyte packets in 80 cases of diarrhea. Only 31.8% of ORS was correctly prepared. Further, 13.6% of ORS preparations were 3 times too concentrated--a potentially harmful concentration. Only 27.8% of the commercial packets was correctly diluted. The rest were too diluted. Researchers theorized that these mothers either did not read the instructions on the packets and/or did not receive any instructions from the health providers on how to correctly prepare ORT. No child had any adverse effects as a result of improper preparation, however.

L29 ANSWER 7 OF 30 MEDLINE on STN
ACCESSION NUMBER: 89208026 MEDLINE
DOCUMENT NUMBER: 89208026 PubMed ID: 3242735
TITLE: Brazilian popular healers as effective promoters of oral **rehydration therapy** (ORT) and related

child survival strategies.
 AUTHOR: Nations M K; de Sousa M A; Correia L L; da Silva D M
 SOURCE: BULLETIN OF THE PAN AMERICAN HEALTH ORGANIZATION, (1988) 22
 (4) 335-54.
 Journal code: 7505403. ISSN: 0085-4638.
 Report No.: PIP-054481; POP-00181170.
 PUB. COUNTRY: United States
 DOCUMENT TYPE: Journal; Article; (JOURNAL ARTICLE)
 LANGUAGE: English
 FILE SEGMENT: Priority Journals; Population
 ENTRY MONTH: 198906
 ENTRY DATE: Entered STN: 19900306
 Last Updated on STN: 20021101
 Entered Medline: 19890602

AB In Ceara State in northeastern Brazil in 1986 infant mortality reached 110-139 per 1000 live births, and 50% of those deaths were due to diarrhea and dehydration. Diarrheal deaths can be prevented by oral **rehydration therapy** (ORT), which replaces lost fluids and electrolytes with oral rehydration salts (ORS) and **water**. ORT was known in the 1830s, but only in the 1960s was the importance of sugar, which increases the body's ability to absorb fluid some 25 times, realized. In northeastern Brazil access to ORT has been severely limited by poverty, official incompetence, and bureaucratic restrictions. In 1984 a 2-year research project was initiated in the village of Pacatuba to test the theory that mobilizing and training popular healers in ORT would 1) increase awareness and use of ORS, 2) promote continued feeding during diarrhea, 3) increase breast feeding, and 4) reduce the use of costly and nonindicated drugs. 46 popular healers, including rezadeiras and oradores (prayers), Umbandistas (priests), espiritas (mediums), an herbalist, and a lay doctor, were recruited and trained. Most of these people practiced a mixture of folk medicine and religion and were highly respected in the community. For purposes of survey, Pacatuba was divided into 3 groups, each containing houses at 4 different income levels. The mothers in 204 Group 1 homes were interviewed concerning ORT and diarrhea-related knowledge before intervention, and 226 households in Group 2 were interviewed after intervention. The healers were taught the basic biomedical concept of rehydration and how to mix the ORS -- 7 bottle cap-fulls of sugar and 1 of salt in a liter of unsweetened traditional tea. The healers were also taught how to use the World Health Organization's (WHO) ORS packets (2% glucose, 90 mmol/l of **sodium** chloride, 1.5 gm **potassium** chloride, and 2.9 gm **sodium** bicarbonate) for cases of moderate to severe dehydration. In addition, the healers were taught the 5 basic health messages: give ORS-tea for diarrhea and dehydration (or any similar folk illness, such as evil eye, fallen fontanelle), continue feeding, encourage breast feeding, eliminate drugs, and ask people to seek the healer quickly at the onset of diarrhea. The healers continued to perform all the popular rites and prayers traditionally associated with curing diarrhea. The healers distributed approximately 7400 liters of ORS-tea in 12 months at a unit cost of 48 cents (US). A post-intervention survey of diarrhea-related knowledge was then carried out among the 226 Group 2 households. Before the intervention 2.9% of the mothers knew about ORS; 71.2% did afterward. All of the healers demonstrated that they knew exactly how to mix the ORS-tea. Knowledge of the WHO packets also increased. The number of mothers who continued feeding their children during diarrhea increased to 92%. Following the introduction of the ORS-tea, purchases of the more costly WHO packets and other commercial medications and antibiotics fell off significantly. The people's belief in folk etiologies remained unchanged, showing that traditional healers can be successfully integrated into an effective health care program. The success rate of the ORT program in

Pacatuba, carried out entirely by word of mouth, compares favorably with expensive mass media campaigns other places.

L29 ANSWER 8 OF 30 MEDLINE on STN
 ACCESSION NUMBER: 89068350 MEDLINE
 DOCUMENT NUMBER: 89068350 PubMed ID: 3199275
 TITLE: Comparison of efficacy of a glucose/glycine/glycylglycine electrolyte solution versus the standard WHO/ORS in diarrheic dehydrated children.
 AUTHOR: Pizarro D; Posada G; Mahalanabis D; Sandi L
 CORPORATE SOURCE: National Children's Hospital, San Jose, Costa Rica.
 SOURCE: JOURNAL OF PEDIATRIC GASTROENTEROLOGY AND NUTRITION, (1988 Nov-Dec) 7 (6) 882-8.
 Journal code: 8211545. ISSN: 0277-2116.
 Report No.: PIP-056888; POP-00188395.
 PUB. COUNTRY: United States
 DOCUMENT TYPE: (CLINICAL TRIAL)
 (CONTROLLED CLINICAL TRIAL)
 Journal; Article; (JOURNAL ARTICLE)
 LANGUAGE: English
 FILE SEGMENT: Priority Journals; Population
 ENTRY MONTH: 198901
 ENTRY DATE: Entered STN: 19900308
 Last Updated on STN: 20021101
 Entered Medline: 19890126

AB It was hypothesized that a mixture of glucose and amino acids enhances **sodium** and **water** absorption and therefore diminishes the volume of **oral rehydration solution**, stool output, and duration of diarrhea. To investigate this hypothesis, the efficacies of two **oral rehydration solutions** (ORS) were compared, one containing (mmol/L): Na⁺ 90, K⁺ 20, Cl⁻ 80, **citrate** 10, glucose 67, glycine 53, and glycylglycine 30, yielding an osmolality of 350 mosmol/kg H₂O, and the other, the standard ORS recommended by the World Health Organization, containing the same electrolyte concentrations and only glucose 110 mmol/L, yielding 310 mosmol/kg H₂O. The study group comprised 31 infants and small children for group A (receiving solution A, the glucose/glycine/glycylglycine-based ORS) and 31 patients for group B (receiving solution B, the standard WHO/ORS). There were no significant differences between the groups in age, fluid loss, or dehydration, or between the groups with respect to clinical outcome, mean time to achieve rehydration, mean percent body weight gain, and serum electrolyte composition. The only statistically significant difference was the mean time between admission and the last diarrheic stool. The glycylglycine/glycine/glucose electrolyte solution was found to be suitable for rehydration, but not to have an advantage over the standard WHO/ORS. A study was carried out on 62 male infant children, aged 3-24 months in San Jose, Puerto Rico. The purpose of the study was to discover if a mixture of glucose and amino acids enhances **sodium** and **water** absorption, thereby diminishing the volume of **oral rehydration solution**, stool output and duration of diarrhea. To investigate this hypothesis, the efficacies of two **oral rehydration solutions** (ORT) were compared: the ORT recommended by WHO (mmol/L) Na⁺ + 90, K⁺ + 20, Cl⁻ 80 **Citrate** 10, Glucose 110, yielding an osmolality of 310 (mosmol/kg H₂O) and one containing (mmol/L): Na⁺ 90, K⁺ 20, Cl⁻ 80, **Citrate** 10, Glucose 67, Glycine 53, Glycylglycine 30, and yielding an osmolality of 350 (mosmol/kg H₂O)). Results are as follows: the infants were divided into two groups - A and B - with each consisting of 31 males per group; group A received the glycine

based solution while group B received the WHO/ORS. There was no significant difference in: the mean age of the patients, mean time and mean number of vomiting, duration of diarrhea, number of stool motions, and duration of fever before admission between the two groups. The glycylglycine/glycine/ glucose electrolyte solution was found to be suitable for rehydration, but is not superior to the standard WHO/ORS. The glycine solution resulted in shortening the duration of diarrheal illness, but failed to decrease the ingested amount of ORS as well as the stool output volume.

L29 ANSWER 9 OF 30 MEDLINE on STN
 ACCESSION NUMBER: 88258747 MEDLINE
 DOCUMENT NUMBER: 88258747 PubMed ID: 3385554
 TITLE: Comparison of glucose/electrolyte and
 glucose/glycine/electrolyte **oral**
rehydration solutions in hospitalized
 children with diarrhea in Costa Rica.
 COMMENT: Comment in: J Pediatr Gastroenterol Nutr. 1989
 Feb;8(2):272-6
 AUTHOR: Pizarro D; Levine M M; Posada G; Sandi L
 CORPORATE SOURCE: Pizarro at Servicio de Emergencias Medicas, National
 Children's Hospital, San Jose, Costa Rica.
 SOURCE: JOURNAL OF PEDIATRIC GASTROENTEROLOGY AND NUTRITION, (1988
 May-Jun) 7 (3) 411-6.
 Journal code: 8211545. ISSN: 0277-2116.
 Report No.: PIP-056861; POP-00191943.
 PUB. COUNTRY: United States
 DOCUMENT TYPE: (CLINICAL TRIAL)
 (CONTROLLED CLINICAL TRIAL)
 Journal; Article; (JOURNAL ARTICLE)
 LANGUAGE: English
 FILE SEGMENT: Priority Journals; Population
 ENTRY MONTH: 198808
 ENTRY DATE: Entered STN: 19900308
 Last Updated on STN: 20021101
 Entered Medline: 19880801

AB The experience of Nalin et al. and Patra et al. with a "super **oral**
rehydration solution (ORS)" containing glucose plus
 glycine to enhance the intestinal absorption of **sodium** and
water prompted us to investigate a similar ORS containing the
 standard World Health Organization (WHO/ORS) plus either 55 or 110 mmol/L
 glycine in infants and small children with noncholera diarrhea. We did
 not find a statistically significant difference between the
 glycine-fortified ORS and the standard WHO/ORS with respect to the
 clinical outcome and composition of serum electrolytes. **Oral**
rehydration solutions containing the WHO recommended
 mixture alone, or with 111 mmol/L glycine or 55 mmol/L glycine were
 compared for treatment of 30 male children aged 1-24 months with clinical
 diarrheal dehydration in the emergency room of the National Children's
 Hospital, San Jose, Costa Rica. ORS volume was estimated by doubling the
 degree of dehydration judged clinically, offered by teaspoons over 4
 hours. Children that could not tolerate oral solution were given ORS by
 nasogastric tube. Those with hypokalemia 3 mmol/L were given a solution
 containing 20 mmol/L K⁺ or iv fluid. The time to rehydration
 averaged 9.45 hours with the WHO solution, 10.2 hours with the low glycine
 ORS and 8.95 with the high glycine ORS (n.s.). Percent body weight gain
 did not differ significantly. The average stool weight and urine
 excretion were lower in the high glycine group, not significantly. 3
 children developed mild hypernatremia, but normalized without additional
 treatment. Thus, glycine-fortified ORS made no significant difference in

clinical outcome or serum electrolytes in this series.

L29 ANSWER 10 OF 30 MEDLINE on STN
ACCESSION NUMBER: 86290666 MEDLINE
DOCUMENT NUMBER: 86290666 PubMed ID: 3739016
TITLE: Oral **rehydration therapy**.
AUTHOR: Avery M E
SOURCE: TURKISH JOURNAL OF PEDIATRICS, (1986 Apr-Jun) 28 (2)
137-40.
Journal code: 0417505. ISSN: 0041-4301.
Report No.: PIP-040006; POP-00166883.
PUB. COUNTRY: Turkey
DOCUMENT TYPE: Journal; Article; (JOURNAL ARTICLE)
LANGUAGE: English
FILE SEGMENT: Priority Journals; Population
ENTRY MONTH: 198609
ENTRY DATE: Entered STN: 19900321
Last Updated on STN: 20021101
Entered Medline: 19860917

AB In this lecture presented to the 30th Congress of the Turkish National Pediatric Society in 1986, the author describes how oral **rehydration therapy** (ORT) has demonstrated its efficacy and been adopted even by physicians in the developed world. The traditional approach of clear liquids by mouth is an imprecise and inappropriate means of rehydration. During the 1st 8-24 hours after intestinal **water** losses, a solution containing **sodium** and **potassium** chloride, bicarbonate, and glucose is necessary to meet deficits; other sources of liquid such as breast milk and rice **water** can be offered to satisfy thirst after rehydration has been achieved. Studies in the US have repeatedly confirmed the benefit and cost-effectiveness of ORT. Also successful has been the use of oral electrolyte solutions at the onset of diarrhea before dehydration becomes a problem. An appropriate **sodium** and **potassium** concentration, with 2% glucose, facilitates absorption across the intestinal mucosa without an increase in the intraluminal osmotic load. Calories need to be provided within 24 hours after the initiation of ORT, especially in malnourished infants. Clean **water** is essential if infection is to be overcome. Finally, it is stressed that medications to slow intestinal motility are not indicated since diarrhea helps to eliminate offending organisms and their toxins.

L29 ANSWER 11 OF 30 MEDLINE on STN
ACCESSION NUMBER: 86122485 MEDLINE
DOCUMENT NUMBER: 86122485 PubMed ID: 4089473
TITLE: Control of deaths from diarrheal disease in rural communities. I. Design of an intervention study and effects on child mortality.
AUTHOR: Kielmann A A; Mobarak A B; Hammamy M T; Gomaa A I; Abou-el-Saad S; Lotfi R K; Mazen I; Nagaty A
SOURCE: TROPICAL MEDICINE AND PARASITOLOGY, (1985 Dec) 36 (4)
191-8.
Journal code: 8503728. ISSN: 0177-2392.
Report No.: PIP-043096; POP-00171492.
PUB. COUNTRY: GERMANY, WEST: Germany, Federal Republic of
DOCUMENT TYPE: Journal; Article; (JOURNAL ARTICLE)
LANGUAGE: English
FILE SEGMENT: Priority Journals; Population
ENTRY MONTH: 198602
ENTRY DATE: Entered STN: 19900321
Last Updated on STN: 20021101

Entered Medline: 19860228

AB From May through October 1980, the "Strengthening Rural Health Delivery" project (SRHD) under the Rural Health Department of the Ministry of Health of Egypt had conducted an investigation into prevention of child mortality from diarrheal disease through testing various modules of Oral **Rehydration Therapy** delivery mechanisms. In a six-cell design counting a total of almost 29,000 children, ORT was provided both as hypotonic sucrose/salt solution prepared and administered by mothers and normotonic, balanced electrolyte solution in the hands of both mothers and health care providers and the effects on child mortality during the peak season of diarrheal incidence were measured. In addition, utilization and effects of ORT when made readily available through commercial channels was similarly examined. A cost-benefit analysis was performed on the cost of the services as well as on the outcome for each of five study cells using the sixth, the control, as reference. Results showed that early rehydration with a sucrose/salt solution in the hands of mothers, backed by balanced **oral rehydration solution** in the hands of health care providers proved the most cost-effective means of reducing diarrhea-specific mortality as well as being as safe as prepackaged commercial preparations. A study design consisting of 2 control and 4 treatment cells was used to compare the effectiveness of different compositions of oral rehydration fluids and preventing dehydration and ultimately child deaths from diarrheal disease. Specifically, the extent of reduction in child mortality among 3 groups was compared: 1 group used a combination of oral rehydration **therapy** (ORT) prepared from the home ingredients of sugar and salt and administered by the mother and ("Oralyte") placed in the hands of the health care providers only; and 1 group used "Oralyte" only administered by both mothers and health care providers. Several data collection processes were employed to collect data on both baseline, intermediate (process), and impact (outcome) variables, including household surveys on demographic composition, sources of (drinking) **water**, incidence of diarrheal disease, knowledge and practice (KP) of mothers on diarrheal disease (DD) recognition and treatment regimen, availability of utensils and supplies necessary for the preparation of rehydration fluid, **sodium** concentration of randomly selected samples of home prepared rehydration fluids. In all study villages, the clerk in each health station maintained a regular count of the number of preschool children who had died within the preceding week. Age, sex, house number, and father's name were reported for each death. 2760 children (12.1%) of the total population under care in Egypt's "Strengthening Rural Health Delivery" project were seen in the course of outpatient clinics during the 6 months of the program, May through October 1980. Overall, the rate of referral to secondary levels of care was almost 11 times higher in the control than treatment villages. From an initial level of about 22/1000 children per 6 months (May through October) in 1976-77, mortality dropped significantly to a mean of 17.5/1000 in 1978-79 and to a mean of a mean of 10.5 by 1980 in the 3 treatment cells. A most important finding was the demonstration that ordinary household sugar and salt together with **potassium** containing fruits and vegetables or, in their absence, tea, may serve as the basic ingredients of an alternative to, and temporary replacement of, the more costly and less readily available prepackaged ORS. This is not to suggest that a simple **oral rehydration solution** made from sugar and salt is as effective as the balanced "Oralyte", yet this simple solution when backed with adequate supplies of "Oralyte" in the hands of the health care provider becomes a more cost effective means of reducing high child mortality from diarrheal disease than the "Oralyte" alone.

L29 ANSWER 12 OF 30 MEDLINE on STN

ACCESSION NUMBER: 86114593 MEDLINE
DOCUMENT NUMBER: 86114593 PubMed ID: 3944745
TITLE: Oral **rehydration therapy**: its use in neonates and young infants.
AUTHOR: Pizarro D
SOURCE: JOURNAL OF PEDIATRIC GASTROENTEROLOGY AND NUTRITION, (1986 Jan) 5 (1) 6-8.
Journal code: 8211545. ISSN: 0277-2116.
PUB. COUNTRY: United States
DOCUMENT TYPE: Journal; Article; (JOURNAL ARTICLE)
LANGUAGE: English
FILE SEGMENT: Priority Journals
ENTRY MONTH: 198603
ENTRY DATE: Entered STN: 19900321
Last Updated on STN: 19900321
Entered Medline: 19860318

L29 ANSWER 13 OF 30 MEDLINE on STN
ACCESSION NUMBER: 84044534 MEDLINE
DOCUMENT NUMBER: 84044534 PubMed ID: 6314492
TITLE: Oral replacement of **water** and electrolyte losses due to travellers' diarrhoea.
AUTHOR: Nalin D R
SOURCE: SCANDINAVIAN JOURNAL OF GASTROENTEROLOGY. SUPPLEMENT, (1983) 84 95-8.
Journal code: 0437034. ISSN: 0085-5928.
PUB. COUNTRY: Norway
DOCUMENT TYPE: Journal; Article; (JOURNAL ARTICLE)
LANGUAGE: English
FILE SEGMENT: Priority Journals
ENTRY MONTH: 198312
ENTRY DATE: Entered STN: 19900319
Last Updated on STN: 19900319
Entered Medline: 19831217

AB An oral **rehydration solution** (ORS) containing glucose, **sodium** and **potassium** chloride, and **sodium** bicarbonate, forms the basis of an oral **rehydration therapy** (ORT) regime which is detailed. The regime can be modified for adults, older children, younger children and neonates, and may be used in combination with other **methods** of augmented fluid intake such as juices and plain **water** supplements. Milk and soft foods should be added to the regimen. Guidelines for patients include **methods** of assessing rehydration. The harmful effects of 'therapeutic' starvation are stressed.

L29 ANSWER 14 OF 30 BIOSIS COPYRIGHT 2003 BIOLOGICAL ABSTRACTS INC. on STN
ACCESSION NUMBER: 1989:34423 BIOSIS
DOCUMENT NUMBER: PREV198987022423; BA87:22423
TITLE: EFFECT OF KAOLIN-PECTIN ON THE ABSORPTION OF **SODIUM** AND **WATER** IN RATS RECEIVING **ORAL REHYDRATION SOLUTIONS**.
AUTHOR(S): VEGA-FRANCO L [Reprint author]; VELASCO-SANCHEZ F; COVARRUBIAS-M M
CORPORATE SOURCE: DEP NUTRICION Y GASTROENTEROL, HOSP INFANTIL DE MEXICO FEDERICO GOMEZ, DR MARQUEZ NO 162, COL DOCTORES, DELEG-CUAUHTEMOC, CP 06720 MEXICO, DF, MEX
SOURCE: Boletin Medico del Hospital Infantil de Mexico, (1988) Vol. 45, No. 9, pp. 582-587.
CODEN: BMHIAK. ISSN: 0539-6115.
DOCUMENT TYPE: Article

FILE SEGMENT: BA
LANGUAGE: SPANISH
ENTRY DATE: Entered STN: 20 Dec 1988
Last Updated on STN: 20 Dec 1988

AB Kaolin-pectin suspension (K-PS) is frequently used in the treatment of acute diarrhea, where in the last decade **oral rehydration solutions** (ORS) have been recommended. The present study evaluates the effect of K-PS on the absorption of **water sodium** contained in the solution as advised by the World Health Organization, and in another with almost identical electrolyte composition, where **dextrose** is replaced by a glucose polymer and glycine. A perfusion technique was used to quantify the intestinal absorption in rats. Twenty animals were used for each solution: 10 in the experimental group and 10 which were maintained as controls. Results showed a significant difference between both ORS; in the experimental group **water** absorption decreased three times and **sodium** was secreted. These data indicate that the use of K-PS in diarrhea could interfere with the success of oral **rehydration therapy**.

L29 ANSWER 15 OF 30 BIOSIS COPYRIGHT 2003 BIOLOGICAL ABSTRACTS INC. on STN

ACCESSION NUMBER: 1987:364908 BIOSIS
DOCUMENT NUMBER: PREV198784062311; BA84:62311
TITLE: HYPERNATREMIA AS A COMPLICATION OF ORAL REHYDRATION.
AUTHOR(S): QUINT J [Reprint author]; BARZILAY Z
CORPORATE SOURCE: DIV PEDIATRICS, SHEBA MED CENTER, TEL AVIV UNIV
SOURCE: Harefuah, (1987) Vol. 112, No. 2, pp. 71-72, 107.
CODEN: HAREA6. ISSN: 0017-7768.
DOCUMENT TYPE: Article
FILE SEGMENT: BA
LANGUAGE: HEBREW
ENTRY DATE: Entered STN: 22 Aug 1987
Last Updated on STN: 22 Aug 1987

AB Severe hyponatremia (178 meq/l) and convulsions were observed in a 7-month-old infant following oral **rehydration therapy** with "Hydran 90" (Teva) for acute gastroenteritis. Excessive oral intake of five liters of this solution (Na 90 meq/l, K 20 meq/l, **citrate** 10 meq/l, Cl 50 meq/l, glucose LLL meq/l) during 24 hours with additional glucose supplementation resulted in severe hyponatremia with convulsions. The convulsions were controlled with IV diazepam and phenobarbital and fluid **therapy** corrected the hyponatremia during the 48 hours after admission. This case indicates the need for appropriate guidelines regarding the use of **oral rehydration solutions**. Intake should be restricted to 150-200 ml/kg/24h of solution, together with milk formula or **water** in a ratio of 2:1. No glucose should be added to the solution lest osmotic diarrhea ensue, increasing **water** and **sodium** loss. Small infants might benefit from lower **sodium** concentrations.

L29 ANSWER 16 OF 30 BIOSIS COPYRIGHT 2003 BIOLOGICAL ABSTRACTS INC. on STN

ACCESSION NUMBER: 1987:191757 BIOSIS
DOCUMENT NUMBER: PREV198783099881; BA83:99881
TITLE: EFFICACY COMPARISON OF **ORAL REHYDRATION SOLUTIONS** CONTAINING EITHER 90 OR 75 MILLIMOLES OF **SODIUM** PER LITER.
AUTHOR(S): PIZARRO D [Reprint author]; CASTILLO B; POSADA G; LIZANO C; MATA L
CORPORATE SOURCE: HOSP NACIONAL DE NINOS, SAN JOSE, COSTA RICA
SOURCE: Pediatrics, (1987) Vol. 79, No. 2, pp. 190-195.

CODEN: PEDIAU. ISSN: 0031-4005.
 DOCUMENT TYPE: Article
 FILE SEGMENT: BA
 LANGUAGE: ENGLISH
 ENTRY DATE: Entered STN: 20 Apr 1987
 Last Updated on STN: 20 Apr 1987

AB In a randomized trial, 62 infants 2 to 35 months of age with dehydration due to acute **watery** diarrhea were allocated to one of two groups; group A received solution A (World Health Organization-recommended **oral rehydration solution**), which contained (mmol/L): Na⁺ 90, K⁺ 20, Cl⁻ 80, **citrate**³⁻ 10, and glucose 110; group B received solution B (Pedialyte RS; Abbott Laboratories, North Chicago), which contained (in mmol/L): Na⁺ 75, K⁺ 20, Cl⁻ 65, **citrate**³⁻ 10, and glucose 139. Oral **therapy** was given until clinical signs of hydration status were normal. During the 48-hour trial, the following laboratory data were collected: blood gases, serum electrolytes, glucose urea, and creatinine values and **sodium** and **potassium** concentrations in stool and urine; serial weights and clinical signs were also reported. Six of the 62 infants, three in each group, required intravenous fluids because of high stool output. Results of clinical outcome and normalization of altered serum electrolyte values were similar in both groups. During the 48-hour trial, eight patients in group A and four in group B had mild, asymptomatic hypernatremia. Pedialyte RS was found to be a safe glucose/electrolyte solution for oral **rehydration therapy**.

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ACCESSION NUMBER: 2003350338 EMBASE
 TITLE: Safe **water** for travellers.
 AUTHOR: Krym V.F.; MacDonald R.D.
 CORPORATE SOURCE: V.F. Krym, Dept. of Community Health Sciences, University of Manitoba, Winnipeg, Man., Canada
 SOURCE: Canadian Medical Association Journal, (19 Aug 2003) 169/4 (317-318).
 Refs: 9
 ISSN: 0820-3946 CODEN: CMAJAX
 COUNTRY: Canada
 DOCUMENT TYPE: Journal; (Short Survey)
 FILE SEGMENT: 006 Internal Medicine
 007 Pediatrics and Pediatric Surgery
 017 Public Health, Social Medicine and Epidemiology
 046 Environmental Health and Pollution Control
 048 Gastroenterology
 LANGUAGE: English

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ACCESSION NUMBER: 2001358973 EMBASE
 TITLE: Vaba, haiza, kholera, foklune or cholera: In any language still the disease of seven pandemics.
 AUTHOR: Stewart-Tull D.E.S.
 CORPORATE SOURCE: Prof. D.E.S. Stewart-Tull, Division of Infection, Joseph Black Building, University of Glasgow, Glasgow G12 8QQ, United Kingdom
 SOURCE: Journal of Applied Microbiology, (2001) 91/4 (580-591).
 Refs: 37
 ISSN: 1364-5072 CODEN: JAMIFK
 COUNTRY: United Kingdom

DOCUMENT TYPE: Journal; Conference Article
FILE SEGMENT: 004 Microbiology
005 General Pathology and Pathological Anatomy
017 Public Health, Social Medicine and Epidemiology
037 Drug Literature Index

LANGUAGE: English

SUMMARY LANGUAGE: English

AB Cholera is a disease which can strike in any community where sanitary conditions deteriorate or where it is possible for a few people to transport the organism from infected areas to new communities. The historical background of the seven major pandemics and the discovery of the causative organism are provided from 1800 to 1995. With the procedure of oral **rehydration therapy** few patients should succumb to the disease if clean **water** is available. The problem is that large-scale floods in many places often lead to a breakdown in clean **water** supplies and sewerage treatment so it will not pay to be complacent, cholera has not disappeared!

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ACCESSION NUMBER: 2001017740 EMBASE

TITLE: Effectiveness of forced rehydration and early re-feeding in the treatment of acute diarrhoea in a tropical area.

AUTHOR: Pignatelli S.; Simpoire J.; Ruggieri M.; Musumeci S.

CORPORATE SOURCE: S. Musumeci, Cattedra di Pediatria Sociale, Puericultura dell'Univ. di Sassari, Viale San Pietro, 12, 01700 Sassari, Italy

SOURCE: Minerva Pediatrica, (2000) 52/7-8 (357-366).

Refs: 21

ISSN: 0026-4946 CODEN: MIPEA5

COUNTRY: Italy

DOCUMENT TYPE: Journal; Article

FILE SEGMENT: 007 Pediatrics and Pediatric Surgery

037 Drug Literature Index

048 Gastroenterology

LANGUAGE: English; Italian

SUMMARY LANGUAGE: English; Italian

AB Background. The administration of oral re-hydration solution (ORS) via continuous infusion through a nasogastric (NG) tube and early refeeding facilitates delivery in hospitalised children and the return back home. **Methods.** Design: The observation was made during a one-year stage in the Camillian Medical Centre (CMC) of Ouagadougou in Burkina Faso. 4,131 infants and children under 5 years old, affected by acute diarrhoea and severe dehydration (loss of weight > 10%) were studied. Those children having difficulties for oral re-hydration were hydrated by continuous infusion through naso-gastric (NG) tube; the NG tube was put in by the nurses and connected to a 500 ml bottle, in which a mixture of glucose and electrolytes was dissolved according to the formula (glucose 20 g + NaCl 3.5 g + NaHCO(3) 2.5 g KCl 1.5 g in 1 litre of **water**). The infusion rate was 20-30 drops/minute. No sedative or anti-emetic drug was given, unless in the presence of uncontrolled vomiting. At the end of infusion, flour of millet (60%), soy bean (20%), peanut butter (10%), sugar (10%) and salt (1%) was administered and continued at home or in the nearby areas available for the night. Results. After 4-5 hrs of infusion 3,717 children (90%) showed a significant gain of weight, although the weight prior to the acute event preceding hospitalisation was never reached during their stay at the CMC. Only 413 children (10%) required a longer period of forced infusion: At the end of the day, however, they were fed with this flour. Conclusions. A simple strategy, based on a NG infusion plus an oral administration of flour has proven safe and

effective in encompassing those difficulties encountered in the treatment and prevention of dehydration in developing countries where the **therapy**, in children affected by diarrhoea, still represents a major daily occupation.

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ACCESSION NUMBER: 1998013621 EMBASE

TITLE: Enhancing clinical efficacy of oral **rehydration therapy**: Is low osmolality the key?.

AUTHOR: Thillainayagam A.V.; Hunt J.B.; Farthing M.J.G.

CORPORATE SOURCE: Dr. M.J.G. Farthing, Digestive Diseases Research Centre,
Royal London Sch. of Med./Dentistry, Turner Street,
Whitechapel, London E1 2AD, United Kingdom

SOURCE: Gastroenterology, (1998) 114/1 (197-210).

Refs: 135

ISSN: 0016-5085 CODEN: GASTAB

COUNTRY: United States

DOCUMENT TYPE: Journal; General Review

FILE SEGMENT: 048 Gastroenterology

LANGUAGE: English

SUMMARY LANGUAGE: English

AB Many empirical clinical trials have used complex carbohydrate as substrate in **oral rehydration solutions** (ORSs) instead of glucose and have shown a number of important clinical benefits. Foremost among these are reduced stool volumes, shorter duration of diarrheal illness, and lower ORS intake. The underlying mechanisms to explain this clinical advantage have not been fully established, but a number of possible factors have been proposed: (1) increased substrate availability, (2) a 'kinetic advantage' for glucose absorption by glucose polymer, (3) differential handling of glucose monomer and polymer by the small intestine, (4) low osmolality, (5) a separate effect of peptides and amino acids on solute-linked **sodium** absorption, (6) an antisecretory moiety in rice, and (6) enhanced mucosal repair and regeneration by luminal nutrients. In this report, we assess the relative contribution of these factors using evidence from laboratory-based studies, mainly in disease-related intestinal perfusion systems in animals and **humans**, and the relevant clinical studies available to date. We advance the hypothesis that of all the possible mechanisms proposed to underlie the enhanced clinical efficacy of complex carbohydrate ORSs, their hypotonicity plays the dominant role. If confirmed, this concept could guide future development of glucose and complex carbohydrate-based ORSs.

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ACCESSION NUMBER: 1998000288 EMBASE

TITLE: **Oral rehydration solution** in the year 2000: Pathophysiology, efficacy and effectiveness.

AUTHOR: Desjeux J.-F.; Briend A.; Butzner J.D.

CORPORATE SOURCE: Dr. J.-F. Desjeux, Conservatoire National Arts Metiers, 2
rue Conte, 75003 Paris, France

SOURCE: Bailliere's Clinical Gastroenterology, (1997) 11/3
(509-527).

Refs: 89

ISSN: 0950-3528 CODEN: BCGAER

COUNTRY: United Kingdom

DOCUMENT TYPE: Journal; General Review

FILE SEGMENT: 006 Internal Medicine

037 Drug Literature Index

048 Gastroenterology
 LANGUAGE: English
 SUMMARY LANGUAGE: English

AB The use of **oral rehydration solution** (ORS) with early refeeding forms the basis of **therapy** for dehydration secondary to diarrhoea. ORS has produced such positive results in dehydrated patients that no further scientific demonstration is needed to confirm its efficacy. This review presents several issues that remain unsettled or controversial. They include the following. 1. The mechanism of **water** handling by the intestine is discussed; this is more complex than initially thought, at the epithelial, cellular and molecular level. 2. The composition of ORS which has been successfully adapted for the most frequent conditions, except for severely malnourished children, is described. 3. In contrast to the strong scientific basis and obvious efficacy in rehydration of ORS, its consequences for growth, nutrition and mortality are difficult to demonstrate, unless adequate long-term nutritional support is also provided in addition to ORS. 4. Finally, discrepancies between the recommendations and the practice of oral **rehydration therapy** are now well documented. Analysis of the causes of these discrepancies may participate in improving public health campaigns.

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ACCESSION NUMBER: 97197621 EMBASE

DOCUMENT NUMBER: 1997197621

TITLE: L-arginine in low concentration improves rat intestinal **water** and **sodium** absorption from **oral rehydration solutions**.

AUTHOR: Wapnir R.A.; Wingertzahn M.A.; Teichberg S.

CORPORATE SOURCE: Dr. R.A. Wapnir, Department of Pediatrics, University Hospital, Manhasset, NY 11030, United States

SOURCE: Gut, (1997) 40/5 (602-607).

Refs: 39

ISSN: 0017-5749 CODEN: GUTTAK

COUNTRY: United Kingdom

DOCUMENT TYPE: Journal; Article

FILE SEGMENT: 002 Physiology
 037 Drug Literature Index
 048 Gastroenterology

LANGUAGE: English

SUMMARY LANGUAGE: English

AB Background - The nitric oxide (NO) precursor L-arginine has been shown to produce variable effects on intestinal absorptive function, including ion transport. Aims - To determine whether there is an optimal concentration of L-arginine, promoting proabsorptive effects from **oral rehydration solutions** (ORS) with 90 or 60 mM **sodium**. Subjects and methods - In vivo perfusion of rat jejunum with determination of net **water** absorptions unidirectional fluid exchanges, **sodium** and calcium transports and glucose absorption. Results - L- Arginine (1 mM) added to the 90 mM **sodium** ORS increased intestinal absorption of both **sodium** and **water**. Higher concentrations of L-arginine (2 to 10 mM) lacked this stimulatory effect. At 20 mM, L-arginine decreased **sodium** absorption below baseline. With a 60 mM **sodium** ORS, 2 mM L-arginine had a maximal fluid and electrolyte proabsorptive effect. At 20 mM L-arginine, net **water** absorption was indistinguishable from that obtained in the absence of L-arginine, and lower than with 2 mM L-arginine. **Sodium** absorption remained raised above baseline in perfusions with 10 and 20 mM L-arginine.

Morphologically, villi from perfusions with increased absorption showed a large expansion of intercellular and lamina propria intercellular spaces. Conclusions - Low concentrations of L-arginine seem to stimulate **water** and electrolyte absorption by the small intestine. This effect is consistent with NO induced vasodilation, whereas higher L-arginine concentrations may be vasoconstrictive and thereby reverse fluid and electrolyte transport.

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ACCESSION NUMBER: 95314053 EMBASE
DOCUMENT NUMBER: 1995314053
TITLE: Oral **rehydration therapy** programme in
India: Standard case management of acute **watery**
diarrhoea.
AUTHOR: Manchanda V.K.
CORPORATE SOURCE: Department of Family Welfare, Ministry of Health/Family
Welfare, Government of India, New Delhi 110001, India
SOURCE: Journal of the Indian Medical Association, (1995) 93/6
(220-226).
ISSN: 0019-5847 CODEN: JIMAAD
COUNTRY: India
DOCUMENT TYPE: Journal; Article
FILE SEGMENT: 004 Microbiology
007 Pediatrics and Pediatric Surgery
048 Gastroenterology
037 Drug Literature Index
LANGUAGE: English

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ACCESSION NUMBER: 94253015 EMBASE
DOCUMENT NUMBER: 1994253015
TITLE: Is a low-osmolarity ORS solution more efficacious than
standard WHO ORS solution?
AUTHOR: El-Mougi M.; El-Akkad N.; Hendawi A.; Hassan M.; Amer A.;
Fontaine O.; Pierce N.F.
CORPORATE SOURCE: WHO/CDD, 1211 Geneva 27, Switzerland
SOURCE: Journal of Pediatric Gastroenterology and Nutrition, (1994)
19/1 (83-86).
ISSN: 0277-2116 CODEN: JPGND6
COUNTRY: United States
DOCUMENT TYPE: Journal; Article
FILE SEGMENT: 007 Pediatrics and Pediatric Surgery
029 Clinical Biochemistry
037 Drug Literature Index
048 Gastroenterology
LANGUAGE: English
SUMMARY LANGUAGE: English

AB The clinical efficacy of a diluted oral rehydration salts (ORS) solution was compared in a pilot study with that of intravenous (i.v.) **therapy** and of standard World Health Organization (WHO)/United Nations Childrens Fund (UNICEF) ORS solution in children with acute diarrhoea. Sixty-one boys aged 3 to 24 months, admitted to hospital with acute diarrhea and signs of dehydration, were randomly assigned to groups receiving standard ORS solution, diluted ORS solution, or i.v. **therapy**. In children treated with standard ORS solution and small amounts of plain **water**, the total fluid intake was 25-39% greater, the stool output was 58-77% greater ($p < 0.01$), and the duration of diarrhea was 30-55% greater than in the other treatment groups. Intake

of plain **water**, taken separately or added to the ORS solution, was greater in children given diluted ORS solution (73 ± 23 ml/kg) than in those given standard ORS solution (21 ± 32 ml/kg) ($p < 0.001$). The mean serum **sodium** concentration increased by 2.2 mEq/L in children given standard ORS solution, whereas it decreased by 2.9 mEq/L in those given diluted ORS solution. This study shows that some children develop worsening diarrhea and increasing serum **sodium** concentrations when treated with standard ORS solution and given only small amounts of plain **water**. This is probably caused by the slight hypertonicity of standard ORS solution combined with transient partial glucose malabsorption. This can be avoided if **water**, breast milk, or another low-solute drink is given liberally during maintenance **therapy** with ORS solution, as recommended by the WHO.

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ACCESSION NUMBER: 94166988 EMBASE
DOCUMENT NUMBER: 1994166988
TITLE: Evaluation of the effects of varying solute content on the efficacy of **oral rehydration solutions** in a rat model of secretory diarrhoea.
AUTHOR: Pillai G.V.; Brueton M.J.; Burston D.; Sandhu B.K.
CORPORATE SOURCE: Department of Child Health, Chelsea and Westminster Hospital, 369 Fulham Rd., London SW10 9NH, United Kingdom
SOURCE: Journal of Pediatric Gastroenterology and Nutrition, (1994) 18/4 (457-460).
ISSN: 0277-2116 CODEN: JPGND6
COUNTRY: United States
DOCUMENT TYPE: Journal; Article
FILE SEGMENT: 007 Pediatrics and Pediatric Surgery
037 Drug Literature Index
LANGUAGE: English
SUMMARY LANGUAGE: English

AB A series of in vivo steady-state perfusion studies in cholera toxin-induced secreting rat intestine were carried out to investigate net **water**, **sodium**, and **potassium** absorption and **water** influx and efflux from a range of **oral rehydration solutions** (ORSs) in which the glucose content had been partially replaced by amino acids or food supplements and the **sodium** content had been reduced to 60 mM. The reference solution used was the World Health Organization formula. There was a significant correlation between the osmolality of the ORS and the net **water** absorption ($r = -0.911$; $p < 0.02$). The greatest net **water** absorption occurred using comminuted chicken- and tapioca-supplemented ORS.

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ACCESSION NUMBER: 93127650 EMBASE
DOCUMENT NUMBER: 1993127650
TITLE: Bicarbonate and **citrate** in oral **rehydration therapy**: Studies in a model of secretory diarrhea.
AUTHOR: Elliott E.J.; Watson A.J.M.; Walker-Smith J.A.; Farthing M.J.G.
CORPORATE SOURCE: Department of Gastroenterology, St. Bartholomew's Hospital, West Smithfield, London EC1A 7BE, United Kingdom
SOURCE: Journal of Pediatric Gastroenterology and Nutrition, (1993) 16/3 (278-283).

ISSN: 0277-2116 CODEN: JPGND6
 COUNTRY: United States
 DOCUMENT TYPE: Journal; Article
 FILE SEGMENT: 007 Pediatrics and Pediatric Surgery
 037 Drug Literature Index
 048 Gastroenterology
 LANGUAGE: English
 SUMMARY LANGUAGE: English

AB In situ perfusion of the rat jejunum and ileum was used to study the effect of inclusion of bicarbonate or **citrate** on the ability of four **oral rehydration solutions** to promote small-intestinal absorption of **water** and **sodium**. Solutions varied in their **sodium** (60-90 mM) and glucose (111-140 mM) content and osmolality (281-331 mosmol/kg). They were studied before and after exclusion of base both in normal intestine and in secreting intestine after exposure to cholera toxin. All solutions promoted net **water** absorption in the normal intestine and reversed net **water** secretion to absorption in the cholera toxin-treated intestine to varying degrees. Net **sodium** movement was directly related to the **sodium** content of **oral rehydration solutions**. Inclusion of bicarbonate or **citrate** did not promote significantly greater absorption of **water** or **sodium** than did solutions without base, in normal or secreting intestine. In the secreting intestine, inclusion of bicarbonate in two solutions actually resulted in greater **sodium** secretion than did identical solutions from which bicarbonate was omitted. These studies suggest that the inclusion of base or base precursors in **oral rehydration solutions** to enhance **water** and **sodium** absorption is unjustified in both normal and secreting small intestine.

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ACCESSION NUMBER: 92070516 EMBASE
 DOCUMENT NUMBER: 1992070516
 TITLE: [A clinical trial on a balanced hydroelectrolytic solutions containing glucose, produced in single bag].
 STUDIO CLINICO SU DI UNA SOLUZIONE IDROELETTRolitica ENERGETICA EQUILIBRATA CON GLUCOSIO IN CONTENITORE UNICO.
 AUTHOR: Breda G.; Corti T.; Della Giustina F.; Forloni B.; Frosali D.; Galli E.; Marabini M.; Olivieri A.; Portaleone B.; Salis C.
 CORPORATE SOURCE: Servizio di Farmacia, Ospedale USSL 32, Piazzale dell'Ospedale 1, 24047 Treviglio, Italy
 SOURCE: Chirurgia, (1991) 4/12 (699-703).
 ISSN: 0394-9508 CODEN: CHRRE
 COUNTRY: Italy
 DOCUMENT TYPE: Journal; Article
 FILE SEGMENT: 009 Surgery
 024 Anesthesiology
 037 Drug Literature Index
 LANGUAGE: Italian
 SUMMARY LANGUAGE: English; Italian

AB A balanced solution containing glucose and electrolytes (**Na+**, **K+**, **Mg++**, **Ca++**, **CL-**, **HPG4** =) has been tested in surgical patients. The solution, contained in high volume polyvinylchloride bags (2000-2500 ml), is indicated in every subject who needs a parenteral **rehydratation therapy**, with no indications for a nutritional support. Seventy-seven patients have been administered this solution during the perioperative period. **Water-electrolyte**

balance, possible complications, patient's and nursing staff's compliance have been monitored. The gluco-electrolyte solution supported correct fluid administration without impairment of **water**-electrolyte balance. High volume bags permitted easier preparation and saving of monitoring time of infusional programs: in this way a better nursing quality was reached.

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ACCESSION NUMBER: 91133841 EMBASE
DOCUMENT NUMBER: 1991133841
TITLE: Oral **rehydration therapy** for invasive diarrhea.
AUTHOR: Varavithya W.; Sunthornkachit R.; Eampokalap B.
CORPORATE SOURCE: Department of Pediatrics, Faculty of Medicine, Mahidol University, Ramathibodi Hospital, Bangkok 10400, Thailand
SOURCE: Reviews of Infectious Diseases, (1991) 13/SUPPL. 4 (S325-S231).
ISSN: 0162-0886 CODEN: RINDDG
COUNTRY: United States
DOCUMENT TYPE: Journal; Conference Article
FILE SEGMENT: 004 Microbiology
007 Pediatrics and Pediatric Surgery
048 Gastroenterology
030 Pharmacology
037 Drug Literature Index
LANGUAGE: English
SUMMARY LANGUAGE: English

AB Current guidelines for the management of diarrheal diseases focus on the use of oral **rehydration therapy** (ORT). Clinically evident dehydration of a moderate degree is not uncommon with invasive diarrhea, and when it occurs, the response to ORT is satisfactory. Studies from hospitals and the community each document the effectiveness of ORT for rehydration of patients with invasive diarrhea. This has been confirmed in a clinical trial of **oral rehydration solution** (ORS) for the treatment of diarrheal diseases in children <5 years of age. Children with moderate dehydration benefited most from ORS, especially those who had culture-proven invasive diarrhea. Significant early weight gain was observed for this group of patients alone after rehydration with ORS. In developing countries, there is no reason to withhold ORT at the first signs of **watery** or dysenteric diarrhea regardless of the cause and independent of the decision to treat the patient with antimicrobial agents.

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ACCESSION NUMBER: 91127759 EMBASE
DOCUMENT NUMBER: 1991127759
TITLE: Cereal-based oral **rehydration therapy**.
I. Clinical studies.
AUTHOR: King-Maung -U.; Greenough III W.B.
CORPORATE SOURCE: International Child Health, Foundation, 10227 Wincopin Circle, Columbia, MD 21044, United States
SOURCE: Journal of Pediatrics, (1991) 118/4 II SUPPL. (S72-S79).
ISSN: 0022-3476 CODEN: JOPDAB
COUNTRY: United States
DOCUMENT TYPE: Journal; Conference Article
FILE SEGMENT: 006 Internal Medicine
007 Pediatrics and Pediatric Surgery
048 Gastroenterology

030 Pharmacology
037 Drug Literature Index

LANGUAGE: English

SUMMARY LANGUAGE: English

AB Studies of 'improved' **oral rehydration solutions**, in which glucose polymers (starch) derived from rice or other cereals were added to improve cotransport of **sodium** and to promote **sodium** and **water** absorption, have been reported. These solutions were administered to decrease diarrhea volume and duration, reduce vomiting, and replace volume loss in stools. In clinical trials of children and adults with high-output diarrhea, such as in cases of cholera, the use of cereal-based **oral rehydration solutions** (ORS) compared with glucose-based ORS produced significant (20% to 53%) reductions in stool volumes. In one study the duration of diarrhea was shortened by 30%. In noncholera diarrhea in children, cereal-based ORS was as effective as glucose-based ORS. Although the amino acid transport systems were intact in patients with cholera, the addition of glycine to glucose-based or rice-based ORS did not reduce stool volume or duration of diarrhea. The exception was alanine, which reduced stool output and ORS requirements. More research is needed to determine the optimal mix of starch, amino acids, oligopeptides, and proteins that would utilize the absorptive active transport systems maximally to reduce fluid losses and duration of diarrhea.

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ACCESSION NUMBER: 89050431 EMBASE

DOCUMENT NUMBER: 1989050431

TITLE: History and rationale of oral rehydration and recent developments in formulating an optimal solution.

AUTHOR: Farthing M.J.G.

CORPORATE SOURCE: St. Bartholomew's Hospital, London EC1A 7BE, United Kingdom

SOURCE: Drugs, (1988) 36/SUPPL. 4 (80-90).

ISSN: 0012-6667 CODEN: DRUGAY

COUNTRY: Australia

DOCUMENT TYPE: Journal

FILE SEGMENT: 030 Pharmacology
048 Gastroenterology

LANGUAGE: English

SUMMARY LANGUAGE: English

AB Oral **rehydration therapy** with glucose-electrolyte solutions has been one of the major therapeutic advances of the century. This alarmingly simple intervention developed from a basic scientific observation in the laboratory, when it was shown that **sodium** and glucose transport in the small intestine are coupled and thus the presence of glucose in an electrolyte solution promotes absorption of both **sodium** ions and **water**. Even more important, **sodium**/glucose co-transport continues despite the secretory diarrhoea of cholera and enterotoxigenic E. coli and after intestinal damage due to rotavirus. Despite widespread use of the **oral rehydration solutions** (ORS) recommended by the World Health Organization (WHO), controversy continues about the optimal composition of these solutions. Discussion centres around the **sodium** and glucose concentrations, the osmolality and whether base (bicarbonate) or base-precursor (**citrate**) is necessary. Already there is a clear divide between the developing world, where the WHO solution (Na 90, glucose 111 and bicarbonate 30 mmol/L) is widely used, and the industrialised world, where solutions with lower **sodium** and until recently higher glucose concentrations have been favoured. Recently, attempts have been made to optimise ORS using animal

and **human** model systems before submitting new candidate ORS to clinical trial. Results to date suggest that hypotonic ORS containing 50-60 mmol/L **sodium** and 90-100 mmol/L glucose produce maximal **water** absorption. The presence of base or base-precursor appears to offer little with regard to the promotion of **sodium** and **water** absorption and its role in combating acidosis remains controversial. Complex substrates such as rice powder and glucose polymers may eventually replace glucose in ORS, since their addition reduces ORS osmolality still further.